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EDITED BY
CHARLES E. DE M. SAJOURS, M.D.,
PHILADELPHIA.

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Cyclopædia of the Year's Literature.

CHOLELITHIASIS.

Diagnosis.—In connection with the diagnosis W. A. Haggard¹ wishes strongly to emphasize that jaundice is not an essential sign of gall-stones, and the practice of waiting for icterus as a confirmatory evidence of their existence is illogical and positively hurtful. Jaun-

dice is a symptom common to the whole biliary tract, whether from inflamma- tion, retention, or obstruction. While in the latter, jaundice is inevitable, it is also commonly present from exten- sion in simple catarrhal duodenitis.

¹Jour. Amer. Med. Assoc., July 7, 1900.

William Jones² emphasizes the following points:—

1. The diagnostic value of the point of maximum tenderness on pressure, which is over the gall-bladder at or near the costal margin of the ninth rib. This point in disease of the gall-tracts corresponds in importance with McBurney's point in disease of the appendix.

2. The diagnostic value of the presence of bile in the urine excreted during or immediately after a very brief obstruction of the common duct.

3. Disease of the gall-tracts is of very common occurrence, and is liable to be mistaken for other troubles which it closely imitates.

J. H. Musser³ calls attention to one or two facts in variance with the commonly-accepted notion of the clinical concomitants of gall-stones, and says:—

"1. Gall-stones may occur at an earlier age than we usually suppose. A man, aged 23, was operated on by Dr. Martin, for me, and 200 calculi removed. He had hepatic colic from his fifteenth year.

"2. Pain may be the only symptom. It may be in various localities. In a case I saw with Dr. Sprengel (operated on by him) the pain was seated at the xiphoid cartilage.

"3. Jaundice may never be present.

"4. Rigors and fever may be the most pronounced symptoms, pain being complained of very slightly.

"5. Of great importance, as an indication of their presence, is the occurrence of persistent localized tenderness in the gall-bladder region, often elicited only on deep palpation when the patient takes a full breath. Gall-stone crepitus may be felt.

"As with hepatic disorders, so with surgical affections of the biliary passages; they must be excluded from af-

fections outside of the bile-ducts which they simulate. Of these, subdiaphragmatic abscess, appendicitis, intestinal obstruction, and acute pancreatitis are the most common.

"Gall-stones, on the other hand, may be simulated by hysteria, acute flatulent dyspepsia, appendicular colic, renal colic, liver colic, pain in the intercostal nerves from osteitis of the spine, malignant disease of the liver, and pyloric obstruction.

"The surgeon must be chary concerning the diagnosis of cholecystitis and its operative interference in all cases in which the liver is enlarged, even though jaundice, pain, and symptoms of infection may be present. Such enlargement is likely to be due to diffused suppurative cholangitis and multiple small abscesses, or to subdiaphragmatic abscess, or to cancer of the liver, or, in rare instances, to forms of cirrhosis, or to syphilis of the organ."

A case of multiple gall-stones in the gall-bladder, simulating cancer, was operated upon by Abbe.⁴ The patient was a woman, 60 years old, who had never had gall-stone colic, but who for three months past had suffered from abdominal pain and loss of weight: about two and one-half pounds weekly. She had no fever, her urine contained bile, and the stools were clay-colored. Jaundice came on slowly during the last ten days. There was a tumor on the right side of the abdomen, which had slowly grown to the size of a cocoa-nut, and on account of its mobility her physician regarded it as a movable kidney. She had the exhaustion of profound cholæmia. Personal examination

² Med. Record, Oct. 20, 1900.

³ Phila. Med. Jour., Oct. 6, 1900.

⁴ Med. Record, Dec. 8, 1900.

showed a cocoa-nut-shaped tumor, which was so movable in the abdomen that it bobbed about and could be moved down to the groin and nearly across the median line. When at rest it was below the right ribs. The mass was brought over to the median line, and under cocaine anæsthesia, aided by a few whiffs of chloroform, it was evacuated through a median incision, a pint of white glairy fluid and 343 gall-stones being removed. The bile immediately began to flow freely through a tube in the distended gall-bladder, and the patient made a perfect and very rapid recovery.

M. H. Richardson⁵ states that, in the diagnosis between a gall-stone impaction and cancer of the pancreas, ascites with jaundice favors cancer. Gradual loss of weight and the absence of pain are strong confirmatory signs.

Absence of pain is significant of simple pressure upon the common duct, and favors a new growth in the pancreas. Yet the absence of pain is not incompatible with the presence of a long-impacted stone if there was a distinct attack of sudden pain in the beginning. The element of suddenness in the appearance of the jaundice, too, is important as indicating a stone rather than a neoplasm in the pancreas.

Changes in the stools peculiar to diseases of the pancreas should be noted, for their presence may definitely establish the diagnosis.

Etiology. — Neil Macphatter⁶ thinks that the tendencies to the formation of cholelithiasis, although occurring in many different diseases, all converge to the two fundamental perquisites, viz.: more or less impediment to the free flow and output of bile and to active or passive catarrh or congestion of the mucous membranes of the gall-bladder

and biliary ducts. It is more probable that gall-stones will follow as the result of low, chronic inflammatory condition than after an acute or virulent type. The precipitation of the essential elements necessary for the formation of a nucleus requires a considerable length of time for its consummation, and such progress is hindered or more frequently absolutely destroyed, when a very acute or virulent variety of inflammation attacks the gall-bladder or biliary passages.

During February, March, April, and May of the past year A. J. Ochsner⁷ operated upon 18 patients suffering from gall-stones, and of these 6, or one-third of the entire number, suffered at the same time from appendicitis. In each one the extensive adhesions, or the cicatricial contractions, showed that the patient must have suffered from a violent, acute attack of appendicitis at some time, and in each case the appendix contained septic material in the form of fecal concretions or pus. It seems clear, then, that during the acute attack an infection of the gall-bladder with the colon bacillus could have been easily accomplished, and this also would have been possible during the long-continued chronic appendicitis following.

Cushing and others have pointed out the fact that a considerable proportion of all patients suffering from gall-stones have previously had typhoid fever. Mignot and others have shown experimentally that the colon bacillus is capable of causing the formation of the gall-stones. Gilbert and Fournier seem

⁵ Phila. Med. Jour., Oct. 6, 1900.

⁶ Post graduate, Nov., 1900.

⁷ Phila. Med. Jour., Oct. 6, 1900.

to have proved beyond a doubt that micro-organisms actually are the exciting cause in the formation of gall-stones.

These facts are borne out by many other observers, so that there can scarcely be any doubt concerning the correctness of the theory that infection is the essential cause in the formation of gall-stones, although there are undoubtedly many predisposing causes, such as faulty diet, constipation, tight lacing, sedentary habits, etc. It is plain that infection can readily occur either through the lymphatics or through the venous system; or, during the acute attack of appendicitis, when the entire alimentary tract, above the ileo-cæcal valve, is filled with infectious material, infection through the common duct is quite possible.

With one exception, all of these patients suffered from the acute attack of appendicitis at a time when a diagnosis of this disease was rarely made; hence the histories fail to bring out the fact that the patient has suffered from appendicitis, notwithstanding the pathological conditions found at the time of operation demonstrate this fact beyond a doubt.

During the four months covered by these cases 61 patients suffering from appendicitis were operated upon, counting the 6 in whom this condition was incidentally found in connection with gall-stones; so that apparently, according to this series of cases, 33 per cent. of all gall-stone cases had appendicitis and only 10 per cent. of all appendicitis cases had gall-stones. However, the latter proportion may not be correct, because it seemed unwise in many cases operated upon for acute appendicitis to examine the gall-bladder, while the appendix was examined in all cases oper-

ated upon primarily for the relief of gall-stones.

F. C. Shattuck^s comes to the following conclusions:—

1. The sterile foreign body does not lead to gall-stone formation, though a sterilized gall-stone may be penetrated by, at least, the colon bacillus.

2. The contents of the hepatic and cystic ducts and also of the gall-bladder are usually sterile.

3. The common duct not infrequently contains bacteria: a fact readily explicable by the relation of the duct to the intestines.

4. Gall-stones have been produced experimentally by a number of observers with a number of organisms. Mignot failed with virulent cultures, while he succeeded with attenuated cultures, alone, or in connection with a foreign body.

5. The presence of bacteria has been demonstrated in connection with a considerable proportion of cases of gall-stones.

6. The clumping of the typhoid bacillus led Dr. M. W. Richardson to think this peculiarity might play an important rôle, and he produced gall-stones in a rabbit by the introduction of a small amount of a clumped bouillon culture into a gall-bladder.

7. The colon bacillus and the typhoid bacillus are the most common bacterial agents in the gall-stone formation.

Thus it would seem that stasis of the bile is a very important factor. This, once established, permits a change in the reaction of the bile contained in the gall-bladder, favors precipitation of bilirubin-calcium, increases cell-desquamation from the gall-bladder wall, and affords a *nidus* for the growth of bac-

^s Phila. Med. Jour., Oct. 6, 1900.

teria, possibly derived from the blood, probably usually from the common duct and intestines.

Complications.—From a study of the relation of cholelithiasis to disease of the pancreas and to fat-necrosis, E. L. Opie⁹ finds that, where anatomical conditions are favorable, disease of the pancreas may occur as a complication of cholelithiasis when a calculus passes along the common bile-duct. The lodgment of a stone near the orifice of the bile-duct, where it may, at the same time, compress and occlude the duct of Wirsung, is not uncommonly a cause of pancreatic lesions and disseminated fat-necrosis. Should a calculus become impacted in this position, one of several conditions may result:—

1. An individual, usually in fairly good health, with perhaps a history of previous gall-stone colic, is suddenly attacked with pain in the epigastric region, accompanied by vomiting and followed by collapse. Death follows usually within forty-eight hours, and at autopsy gall-stones are found in the bile-passages, while that one which caused the fatal attack may be still lodged in the common duct near its orifice. The pancreas is enlarged and infiltrated with blood, and hæmorrhage may have occurred into the surrounding tissue. Foci of fat-necrosis are usually present.

2. A fatal termination may not follow rapidly the symptoms mentioned. Pain in the epigastrium persists, jaundice may be present, and a tumor-mass above the umbilicus may indicate a probable lesion of the pancreas. At the end of one or more weeks or months death occurs, often with symptoms indicating the presence of suppurative inflammation, presumably in the neighborhood of the gland. At autopsy the

diagnosis of cholelithiasis is confirmed by the presence of gall-stones in the gall-bladder or in the bile-ducts, and occasionally the offending calculus is still lodged near the junction of the common bile-duct and the duct of Wirsung. The pancreas is dry, black, and necrotic, and evidence of previous hæmorrhage may be present. Secondary infection has occurred, and the pancreas lies in an abscess-cavity formed by the bursa omentalis. In the wall, and often widely disseminated in the abdominal fat, are foci of necrosis. Since the individual has survived the primary lesion, opportunity has been given for the development of secondary changes in the injured pancreas and neighboring fat.

3. In certain instances long-continued or repeated obstruction of the pancreatic duct by gall-stones does not cause the acute lesions described, but produces chronic inflammatory changes.

For the last two years, acting upon the knowledge of the frequent association of disease of the gall-bladder, right kidney, and appendix, G. M. Edebohl¹⁰ has made it a routine practice in every case where he operated for movable right kidney to open the peritoneum posteriorly. From that point in about 95 per cent. of the cases the appendix could be reached, explored, and removed if necessary. From that point also the gall-bladder, liver, and gall-ducts could be readily explored in their entirety. Of the last 8 patients operated upon for movable right kidney, no less than 4 were found by this exploration to possess gall-stones.

Treatment.—A. Vander Veer¹¹ thinks

⁹ Amer. Jour. Med. Sciences, Jan., 1901.

¹⁰ Post-graduate, Nov., 1900.

¹¹ Inter. Jour. of Surg., Nov., 1900.

that starchy foods and sweets should be excluded from the diet in these cases, as shown by the frequent beneficial results in severe cases of gall-stone trouble after an energetic course of treatment at Carlsbad. Massage seems an exceedingly dangerous line of treatment, particularly in connection with a full gall-bladder or a gall-stone lodged in the common duct. Aspiration of the gall-bladder should also seldom, if ever, be countenanced.

In suppuration of the bladder, with adhesions, a most thorough examination should be made from within by digital exploration and the use of the probe for any possible deep-seated calculi.

In prolonged operations upon the common duct or hepatic ducts, where adhesions are present and it is difficult to close the incision after removal of the calculus, drainage through the peritoneal pouch, by means of the lumbar stab, is advisable.

When the patient is suffering seriously from cholemia, with marked ecchymotic spots over the body, intense itching, and an examination of the blood discloses a septic condition, an operation is not to be encouraged. It is too late, in the vast majority of cases, for the patient to recover.

General practitioners, as well as the surgeon, should place more earnestly before the patient and friends the dangers of repeated attacks of gall-stone irritation, resulting in cancer of the ducts, stomach, or liver.

Janeway¹² says that gall-stones in the common duct may produce obstructive jaundice without any biliary colic. Of 5 cases of this kind under personal observation, 3 were operated on, and 2 of the latter were fatal. It depends upon the cause of the obstruction as to how long after the onset of the jaundice one

should advise against operation. In obstruction due to cancer of the common duct an operation might produce fatal hæmorrhage within four or five months after the onset of the jaundice. In obstruction due to stone it is safe to operate after a much longer period: perhaps within two years.

Albert Kocher¹³ thinks that all patients who desire to recover from gall-stones should submit to an operation. Wherever there is repeated biliary colic or evidence of numerous stones or of stones of a size that will not pass without harm, operative intervention is indicated. One should not wait until secondary changes have occurred: inflammations, perforations, or malignant degeneration.

Regarding contra-indications to the operation for gall-stone, J. H. Musser¹⁴ says: "The surgeon must watch the blood. The time of clotting must be carefully inquired into. The corpuscles must be counted. A lessening of two and one-half millions makes an operation dangerous. The hæmorrhages which occur in chronic jaundice are serious contra-indications, yielding only to the necessity to save life.

I. B. Perkins¹⁵ believes that in gall-stone to explore is by far the safer plan, and that in operating, where it can be done, it is better to attach the gall-bladder to the abdominal peritoneum and drain it externally, especially if there is any question of its containing infective material. Where this cannot be done, cholecystenterostomy is the proper procedure, joining the gall-bladder to the small intestine by prefer-

¹² Med. Record, Dec. 8, 1900.

¹³ Correspondenz-blatt f. Schweizer Aerzte, vol. xxx, p. 193, 1900.

¹⁴ Phila. Med. Jour., Oct. 6, 1900.

¹⁵ Regular Med. Visitor, Oct. 15, 1900.

ence or to the colon, if more convenient. This can best be done by means of the Murphy button. The gall-bladder may be removed, if necessary, provided the ducts can be left intact.

According to F. A. McGrew¹⁶ gall-stone colic with temporary impaction never demands operative interference. The treatment is necessarily symptomatic, and is identical whether the impaction be of the cystic or of the common duct. Frequently-recurring attacks, even if temporary, will justify removal of the stones remaining in the gall-bladder.

Permanent impaction of either the cystic or the common duct almost always demands surgical relief. When the cystic duct is the seat of the obstruction, a vertical incision along the outer border of the right rectus, beginning just below the costal arch, or, in case of great enlargement of the gall-bladder, somewhat lower, exposes the gall-bladder. After walling it off with sponges, while it is held in the abdominal wound, a trocar is plunged into it and the fluid contents withdrawn. A vertical incision enters its cavity, and the gall-stones present are scooped out or expressed. The stones forced into the neck of the sac and the obstructing one in the duct are squeezed back into the cavity by external digital manipulation, and so removed. If there remains no doubt as to the removal of all the stones, the incision into the gall-cyst may be closed with chromicized catgut, and the abdominal incision closed with or without drainage. Otherwise the edges of the gall-bladder incision are stitched to the peritoneal edge of the abdominal wound in its upper angle, drainage inserted into the cyst, and the abdominal incision closed below. Should there be any suspicion

that the retention cyst had become empyematous, drainage would be unfailingly indicated.

When the common duct is the seat of the obstruction, the course pursued differs in the method of dealing with the impacted stone. If soft, it may be crushed between the thumb and fingers or the properly-cushioned blades of compression-forceps. But usually an incision through the wall of the duct over the impediment must be made, and the stone extracted, after which the opening into the duct may be closed with fine sutures or be allowed to close spontaneously. Whether sutured or not, a strip of gauze, and a glass or rubber drainage-tube should be led down to it for forty-eight hours as drainage and excitant of protective adhesions. If the stone cannot be found and removed, or the condition of the patient makes haste necessary, a cholecystenterostomy is the procedure of choice.

H. A. Kelly¹⁷ notes the importance of utilizing an abdominal incision which is over eight centimetres in length for the purpose of investigating the condition of all the important viscera which are accessible to touch, provided the condition of the patient is satisfactory and there is no technical objection to the slight delay involved. A simple and satisfactory method of removing stones when found in the gall-bladder in this way is as follows:—

When the incision is made in the lower part of the abdomen either in the median line or over the site of the vermiform appendix, the hand is introduced into the abdomen, hugging the abdominal wall, conducted up over the omentum and the colon as far as the

¹⁶ Phila. Med. Jour., Oct. 6, 1900.

¹⁷ Med. News, Dec. 22, 1900.

liver, where the gall-bladder is easily discovered in its notch on the right as a somewhat tense or flaccid sac filling the fissure and projecting out a little beyond the hepatic border. The gall-bladder is now squeezed and the rapid collapse noted, showing that the cystic duct is pervious. If there is a stone present, it is easily felt through the thin walls by palpating from the cystic duct up toward the fundus. In order to remove a stone, if the gall-bladder is much distended, it should first be emptied by compression between the thumb and two fingers; this allows the stone to be grasped or rather hooked up by the first and second fingers to the top of the gall-bladder, where the stone is then lifted firmly up against the abdominal wall, which is thrust forward until a distinct eminence appears on the skin surface just below the margin of the ribs. Care must be taken not to allow any loop of intestine or the margin of the liver to intervene between the bladder and the abdominal wall.

An incision about 4 or 5 centimetres in length is now made with the free right hand, down through the abdominal parietes over the eminence directly upon the stone, cutting straight through, layer by layer, in a vertical direction. The pressure from within keeps the tissues anæmic, as skin, fat, and muscle are successively divided. The white peritoneum is easily recognized, and on reaching this layer a little nick is made and the two edges caught with mosquito-forceps; as the peritoneal incision is made a little larger, the gall-bladder, with the stone, appears in the incision, is opened, and its edges caught as the incision is made large enough to evacuate its contents; the stone may then clear the opening suddenly and land on the floor some distance from the

table. The edges of the gall-bladder, held up by four of Halsted's delicate mosquito-forceps, are now united by a fine silk suture, beginning at one end of the incision and continued to the other, embracing all the coats but the mucosa. The same suture is then continued back to the starting-point as a quilted suture, burying the first layer, when the ends are tied together. If the gall-bladder is normal, it may be dropped without a drain. If the walls are diseased, the gall-bladder may be dropped after closing with interrupted sutures and a small drain inserted provisionally. The abdominal wound is then closed and the operation completed.

G. H. Edington¹⁸ states that among the ideal conditions in operating for gall-stones are those in which there are either no, or at least trifling, inflammatory adhesions, and in which the gall-bladder projects sufficiently to enable one to suture it to the parietal peritoneum.

The presence of both of the ideal conditions above mentioned enables the surgeon to make a thorough examination of the bile-ducts as well as the gall-bladder, and, if he deem it necessary, to attach the fundus of the latter organ to the parietal peritoneum and so provide for the subsequent escape of bile on to the surface, without risk of soiling the general peritoneal cavity.

It has been the experience of some that, in cases where the gall-bladder is so much contracted as to make its suture to the parietes of the abdomen an impossibility, intra-abdominal tension makes it easier for the bile to pass away directly through a tube inserted into the fundus of the organ than to enter the cavity of the abdomen, and

¹⁸ Glasgow Med. Jour., Sept., 1900.

that within twenty-four to forty-eight hours plastic peritonitis shuts out the drainage-tube from the general peritoneal cavity. This statement, which is taken from Mayo Robson, is accompanied by the remark that he himself has great faith in the method of packing round the tube with iodoform gauze. But, apart from the contracted condition of the bladder, the use of iodoform gauze as a packing is a help in a case where a rent is made in the bladder-wall close to the commencement of the cystic duct. The tacking down of parietal peritoneum to the fundus of the bladder, or the fixation of a portion of omentum round the tube, are methods which have also been recommended. The "ideal" method is to close the bladder and drop it back into the abdomen, but this can only apply to cases in which you can be certain that the ducts are not obstructed.

CHOREA.

Diagnosis.—A. A. Eshner¹⁹ says the disease designated habit-chorea, habit-spasm, or preferably spasmodic tic, does not result from the same causative factors as chorea. The movements are different from those of chorea, being often co-ordinated, purposive, and repetitive. They may disappear from one situation and reappear in another. They do not interfere with voluntary movement, and are more distinctly intermittent. Facial movements are perhaps most common. Grimaces, blinking of the eyes, distension of the nares, pursing of the lips, elevation of the eyebrows, and shrugging of one or both shoulders are also common. An arm may be jerked, a foot kicked, a halting movement or some other definite, usually simple act performed; sometimes vocal utterances are associated. The movements may, in

one form or other, persist for years, usually with remissions, occasionally with intermissions. They cease during sleep, and can be restrained temporarily by an effort of the will. They differ from the movements of chorea in their distribution, their character, their persistence, and the absence of seasonal relation.

Painful facial spasm, or mimic spasm, may be considered as a variety of convulsive tic, and is to be differentiated from chorea by its localization, involving one or several muscles on one or both sides of the face; its association with disease or paralysis of the facial nerve or the facial cortical centre; and its occurrence in adults rather than in children. The spasm may be clonic or tonic, and is relieved by rest increased by emotion and activity. The disorder is irregular in course, and usually long in duration.

The athetoid movements that attend certain lesions of the brain sometimes closely simulate those of chorea; but, so far as their peculiarity can be expressed by words, they are rather vermicular or serpentine, as compared with those of chorea, and less jerky, and rather progressive than abrupt. They, too, are inco-ordinate and involuntary, but they are usually confined to the same member or members; they persist indefinitely, and are but little susceptible to therapeutic intervention; and they are, as a rule, although not always, associated with palsy and other spastic phenomena, and often with evidences of mental deficiency. They are excited or intensified by voluntary movement, and sometimes in association with other movements, and by excitement.

¹⁹ Jour. Amer. Med. Assoc., July 21, 1900

So-called chronic or senile chorea, the disorder described by Huntington, is dependent on degenerative changes in the cerebral cortex, and occurs only in adult or late life. While the movements are much like those of chorea, they do not yield to treatment, and with them mental aberration becomes associated. The onset of the disease is gradual, the movements are less abrupt and jerky than those of chorea, the gait may be staggering, and other members or ancestors in the family may have been attacked.

Hysteria may be attended with various disorders of movement, some of which may closely simulate chorea. These, however, are usually more abrupt in onset, more rapid, more shock-like, and more rhythmical than those of chorea, and they are, as a rule, associated with other hysterical stigmata. However, an hysterical patient may also be choreic or *vice versa*.

Torticollis, or spasmodic wryneck, in a child may simulate chorea. Here the movement, however, is confined to a few muscles, and is always of the same character. It may be tonic as well as clonic.

The nodding, or rotatory spasm, observed in rachitic children differs from chorea in its limitation to the head, in the exceedingly early period of life at which it occurs, in its association with other symptoms of rickets, and its disappearance with improvement in the nutritional state.

Etiology.—Gentian²⁰ gives some interesting facts in support of the influence of menstruation on chorea. He gives the following statistics showing the ages of the patients at the onset of the symptoms of chorea: From 5 to 10 years, 18 cases; from 10 to 16 years, 45 cases; from 16 to 20 years, 13 cases. He found that, when the menses ap-

peared, the chorea ceased; when, however, the flow was insufficient in amount or deficient in color, the function had no influence on the disease. That women during pregnancy are subject to chorea is universally recognized; from the clinic of Baudeloque, from 1889 to 1899, the author finds there were 15 cases of chorea out of the 15,638 deliveries: 1 in every 1042 cases. Of these, 10 occurred in primiparae. Of the 15,638 mothers, 89 had had chorea as children; of these, 15 had a severe form of the malady. It is therefore concluded that children who suffer severely from the disease prior to their menstrual period are liable to be attacked with the disease during their pregnancy.

According to A. A. Eshner,²¹ the actual causation of chorea yet awaits final solution, but the belief is growing that the disease is dependent on irritative disturbance of the motor cells of the cerebral cortex, of either infections or toxic origin. In the etiology, heredity—sometimes direct, at other times indirect—is a not unimportant factor. Chorea occurs almost invariably in neurotic stock. Fright seems to be a less common provocative influence than is generally believed. Worms, eye-strain, peripheral irritation, and other so-called reflex influences probably play no part in the etiology of true chorea. The apparent relations between chorea and rheumatism are yet obscure.

Treatment.—Levy²² says that experiments made by Dr. Chapuis in 1879 demonstrated that arsenic is much less toxic in its effects when given with but-

²⁰ Archivos Ginecopatias: Med. Age, June 25, 1900.

²¹ Jour. Amer. Med. Assoc., July 21, 1900.

²² Jour. de Méd. et de Chir. Prat., June 25, 1900.

ter. than when taken in solution. Numerous observations on this point have been personally made with the view of determining the best mode of preparation and administration of the mixture, resulting in the recommendation that 10 grammes of butter be employed and to this be added the total amount of arsenious acid which it is intended to use in the treatment of the case, together with common salt in such quantity that 0.1 gramme of salt corresponds to 0.005 gramme of arsenious acid. The dose of arsenic given on the first day is 0.005. The quantity is increased by 0.005 gramme per day until a maximum of 0.03 gramme is reached, when the dosage is gradually diminished. The quantity is, however, given in a single dose, and it is repeated every second day only.

In examining the notes of 312 cases of chorea treated at the Manchester Clinical Hospital for Women and Children, in most cases with large doses of arsenic, Railton²³ finds that four patients suffered from arsenical neuritis. The patients all made a good recovery. It is thought that the occurrence of neuritis in those predisposed to such affection depends on the total quantity of arsenic administered, rather than the length of time during which the treatment is continued.

GONORRHOEA.

Diagnosis. — C. A. Porter²⁴ says that cases of gonorrhœal infection and the arthritis accompanying osteomyelitis, or epiphysitis, are most frequently mistaken for rheumatism. In infants or young children often no existing cause can be found. In older children or young adults exposure to wet or cold not infrequently precedes the joint inflammation, or so-called "rheumatism"

sets in after an injury. There may have been a sore throat. The constitutional symptoms are, in general, more severe, the fever higher and less irregular, with a more rapid pulse. Sweats are uncommon, chills relatively frequent, and the leucocytosis more marked. The pain is extreme and boring, limited in the earlier stages to the epiphysal end of the adjacent bone, this sign soon giving place to general tenderness about the joint as it becomes involved. Of value for diagnosis is the definite interval by which the general symptoms and great pain precede the signs of local infection, thus differing from rheumatism. In superficial joints oedema soon appears and rapidly extends; redness appears later than in acute rheumatism; the joint-capsule or periosteum may be perforated, when fluctuation becomes evident. Though more than one joint may be involved, such septic processes are usually monarticular. Salicylates have little effect on the pain.

Complications. — Young²⁵ has aspirated the bladder suprapubically over 100 times, and thinks it the only way to get a pure culture from the urine. The gonococcus may be the cause of cystitis, but cannot be cultivated unless the medium in the bladder is favorable to its growth. In one case the gonococcus was demonstrated to be present in the bladder for five years without giving rise to marked symptoms. In a second case the patient had had chronic cystitis for seven years, this following typhoid fever. A pure culture of the typhoid bacillus was obtained from the bladder. Afterward a gonorrhœal infection was added, with no aggravation of the

²³ Med. Chronicle, Feb., 1900.

²⁴ Boston Med. and Surg. Jour., Oct. 18, 1900.

²⁵ *Ibid.* Sept. 27, 1900.

symptoms. The gonococcus drove out the typhoid bacillus, as a short time afterward only the former could be detected in pure culture.

Bransford Lewis²⁶ had a case in which the condition of the kidney was that of an acute interstitial nephritis added to chronic nephritis. Gonococci were demonstrated in pus found in the kidney. He does not understand why an infection of the kidney by gonococci alone should be a rare occurrence, and thinks it is not so rare as supposed.

A study of gonorrhœal ulcerative endocarditis, with cultivation of the gonococcus, by A. J. Lartigau,²⁷ shows that (1) gonococcic urethritis may be the starting-point for a fatal septicæmia induced by a pure infection with the gonococcus; (2) endocarditis and arthritis are occasionally complications of such an infectious disease; (3) the endocardial processes may be incited by the gonococcus without the association of other organisms.

A. H. Ward²⁸ advances the following conclusions regarding the struggle for life between the microbes and the body: The gonococcus in its process of growth in the body produces an irritating toxin, which is the direct cause of all symptoms, both local and general. In every case the toxin is absorbed into the system, where it causes systemic degenerations of varying degrees of severity. Gonorrhœa is thus a general toxæmic affection, but the microbes which form the toxin are generally localized in or around a mucous tract. The infection may spread by continuity to the ducts and organs which communicate with the tract affected, or it may penetrate to the interior of the body, either by direct extension or by a process of growth through the mucous membrane affected. Thence the invasion reaches the cellular

tissues, the lymphatics and glands, and the vascular system. This invasion is rendered possible by the paralyzing effect of the toxin absorbed upon the leucocytes, which in susceptible individuals hinders the process of phagocytosis. Having reached the circulation, the microbes are conveyed to the heart, or to terminal capillary circulations in serous and synovial membranes, or to the slender vessels in tendons and fibrous structures. In these situations they become stranded, and developed, forming more toxin, which sets up local inflammations. The invasion of the organism is favored by all too-energetic measures, directed to the local infection, since these depress the local powers of resistance, and by abrading or lacerating the mucous surface may indirectly open doors to the invaders.

Treatment.—The general conclusions drawn by W. W. Wilson,²⁹ from the work done in 53 cases of gonorrhœa treated by argonin injections, are that argonin is by far the best thing in the treatment, and if used with judgment will achieve really remarkable results. If a case is seen within forty-eight hours after the appearance of the discharge, argonin alone is a very satisfactory treatment, and in a majority of uncomplicated cases will effect a rapid and absolute cure in from four to fifteen days. In one case seen the day the discharge appeared, and in which the gonococcus was found, argonin injections alone caused the discharge to disappear on the fifth day. In this case a 2-per-cent. solution was used in 15-cubic-centimetre

²⁶ Boston Med. and Surg. Jour., Sept. 27, 1900.

²⁷ Amer. Jour. Med. Sciences, Jan., 1901.

²⁸ N. Y. Med. Jour., Oct. 27, 1900.

²⁹ Buffalo Med. Jour., Jan., 1901.

syringe and retained ten minutes, four times a day.

In cases where the urinary symptoms were severe, the patient was given the alkaline treatment internally and the injections of argonin for the urethral injections. A 2-per-cent. solution has been the most satisfactory strength, although as high as 5 per cent. may be used in severe cases with excellent results.

In vulvo-vaginitis permanganate irrigations were very satisfactory, but they were slower than the argonin. The strengths used were 5 per cent. and 10 per cent. for from three to five days, followed by reduction of degrees to 2 per cent.

Much depends upon the preparation of the solution. If possible, the surgeon should prepare it personally, and it should be dispensed in dark bottles. The most satisfactory method of preparing the solution is to first make a paste of the necessary amount of argonin powder, using hot water. To this paste enough hot water is added to make the percentage solution required. This solution should be strained. Another very good method is to shake 1 part of argonin in 10 parts of cold water, add sufficient boiling water to make the desired quantity, and shake until the argonin is in solution. Then this is strained.

In acute gonorrhoea F. B. Newton³⁰ makes, if possible, a smear of the discharge on a cover-glass in order to confirm the diagnosis. This having been established, a 1-per-cent. solution of protargol is prescribed, which is to be used slightly warm, in a $\frac{1}{4}$ -ounce, blunt-pointed, rubber syringe, three or four times daily. The patient is directed to urinate before the injection, and then to grasp the glans penis, raise it perpendicularly, putting it slightly on

the stretch, but not to put a finger on the perineum to prevent the fluid from going back into the bladder. The fluid should be retained in the urethra five minutes, the patient gently stripping it backward with the finger while holding the meatus closed. Any slight smarting complained of by the patient will appear only during the first two or three injections, and then only temporarily.

The patient should also be told to drink alkaline mineral waters, as Vichy, Seltzer, plain soda, etc., and to take an abundance of water between meals, but to drink only one cup of coffee daily. He should avoid alcohol, and be moderate with tobacco; also abstain strictly from coitus and avoid severe exercise. If constipation should occur, this should be relieved by a good saline laxative. A suspensory bandage is to be worn and greatest care is enjoined against infection of the eyes.

C. A. Porter³¹ states that in gonorrhoeal arthritis no drugs have in his experience exerted much influence on the joint lesion. Morphine is often required in the acute stages. The treatment of the urethra should be begun at once, with mild, hot permanganate or citrate-of-silver irrigation. No sounds should be passed during the acute joint disease. Laudanum fomentations, turpentine stupes, guaiacol, or ichthyol ointment have appeared of little benefit. Most relief has been obtained from the continual use of ice-bags, or dry heat, preferably with a hot oven, at a temperature of 250° to 400°. Flaming with the actual cautery is the best counter-irritant and often relieves the pain.

Absolute immobilization by appropriate splints is the best treatment in the

³⁰ Texas Courier-Rec, of Med. Oct., 1900.

³¹ Boston Med. and Surg. Jour. Oct. 18, 1900.

acute stage. If gradual extension is too painful, an anæsthetic should be given at once, and the joint straightened and immobilized, for, if ankylosis results, adhesions can be more safely broken by flexion than by extension. In the elbow the opposite is true, and this joint should be flexed to a right angle.

While the acute process usually subsides within two or three weeks, the joint may grow stiffer day by day, yet movement is bitterly complained of by the patient. In such cases, advantage should be taken of the period of diminished sensitiveness to pain which usually follows the hot-air bath. Massage should precede movement. Unless the signs in the joint become worse, treatment should be firmly persisted in. At intervals, under an anæsthetic, the joint may be *once* fully flexed and extended, allowed to rest for a couple of days, when active and passive movements should be continued. In the acute stages, when the capsule is much distended, aspiration should be done for the purpose of diagnosis and irrigation of the joint. In the subacute period pressure, with immobilization, should not be used. The question of operation in gonorrhœal arthritis is advocated even in relatively-mild cases by good surgeons.

By operation the toxins and gonococci in the joint-fluid may be rapidly evacuated, and such treatment is indicated in all severe gonorrhœal joints, as in any septic arthritis. Good temporary results may follow operation in the knee, where the surfaces can be seen, thoroughly cleaned, and superficially disinfected; but, as the gonococci will continue to proliferate in the synovial membrane beyond reach, the process, though checked, will often continue. As relatively few pure gonorrhœal infections lead to suppuration, the treat-

ment by immobilization and early passive motion is safer for general adoption. Particularly is this true in the more complicated joints. When pus can be demonstrated, by fluctuation, œdema, and redness, or aspiration of the joint or tendon-sheaths, then only should operation be resorted to.

Jules Janet²² considers that recent blennorrhagia in woman may affect the urethra, Skene's glands, Bartholin's glands, the vagina, and the cervix uteri, and should be disinfected at every *séance*, or at least those foci infected. The urethra is personally washed out with a return-flow cannula constructed by M. Gentile. For irrigation, potassium permanganate of a strength of from $\frac{1}{2}$ to 1 per cent. is used. Nélaton's short sound is also frequently used, by means of which the bladder may be washed out and filled with permanganate. The patient immediately rejects this injection, thus washing out his urethra. Those Skene's glands which are extra-urethral may be emptied by pressure, and washed by means of a syringe with a soft, fine catheter, using permanganate solution of a strength of 1 to 300. When intra-urethral, the lips of the meatus should be opened with a small bivalve speculum. Then the orifices of the glands are sought and treated in the same way as the others. Or they may be incised from the urethra, but lavage with a fine cannula is ordinarily sufficient. Bartholin's glands are emptied by pressure and injected with permanganate, 1 to 300, through a fine cannula introduced into their excretory ducts. The vagina is irrigated with permanganate of a strength of $\frac{1}{2}$ to 1000, a glass catheter being used, while the cervix is swabbed

²² N. Y. Med. Jour., Sept. 15, 1900.

by means of an applicator, with cotton moistened with a 1-per-cent. solution of the permanganate. The treatment is to be continued during menstruation. The permanganate may be replaced by a 2-per-cent. solution of protargol for the cervix, 1 per cent. for the glands, and $\frac{1}{2}$ per cent. for the urethra.

Hamilton³³ speaks highly of injections of cocaine, 4 per cent., followed by a solution of silver nitrate, 4 grains to the ounce. The treatment is painless.

Leopold Casper³⁴ believes that 1-per-cent. solutions of thallium sulphate injected from six to eight times daily is the nearest approach to specific treatment that has been reached. When the cases are mild with little or no irritation, antiseptic treatment with silver salts, especially the nitrate, is the best.

HÆMORRHOIDS.

Treatment.—In enucleation for hæmorrhoids, J. Rawson Pennington³⁵ gives a cathartic two nights before the operation, a saline the following morning, and a bath, and colonic flushing the night before. The next morning he gives an enema of from $\frac{1}{2}$ to 1 pint of cool water, and operates two hours later. The entire rectum should be carefully examined. Each anal quadrant is grasped at the muco-cutaneous junction with a pair of forceps; the anus is everted and the internal tumors exposed. Seizing the forceps attached to the posterior quadrant, he fully everts it, and with a pair of scissors curved on the flat cuts off the redundant membrane only, which is usually about one-third or one-half of the uppermost part of the hæmorrhoidal node. This permits the blood in the tumor to escape. All of the angiomaticous tissue is carefully removed, when the remaining wall collapses. Each quadrant in regular

order is treated in a like manner. A stream of hot sterilized water flows continuously over the field during the operation. Spurting vessels, if any, are caught with forceps and thoroughly twisted. Should this fail to control hæmorrhage, the vessel is ligated. After the operation a rubber-covered tampon is introduced. After the bowels have moved, the patient is instructed to keep the stools soft for two or three weeks by taking compound licorice powder or Apenta water, the latter being very palatable and effective. This operation has been personally performed in fifty cases, with more satisfactory results than obtained by any other method.

In the treatment of hæmorrhoids, J. M. Mathews³⁶ prefers the ligature to any other method, as it is simple and easy of execution, requiring fewer assistants than the clamp-and-cautery plan. The base of the pile is transfixed, and after tying each half separately the whole mass is included in the ligature. No matter how large the mass of hæmorrhoids, the operation should be completed at one sitting. The after-treatment of piles consists in irrigating with bichloride solution and dressing with iodoform gauze.

As a preventive of piles, cold water is recommended and keeping the bowels open. The best local application is the following ointment:—

- R Vaseline, 1 ounce.
- Muriate of cocaine, 12 grains.
- Morphine, 6 grains.
- Calomel, 40 grains.

M. Sig.: Apply locally night and morning.

³³ Indian Med. Gaz., Sept., 1900.

³⁴ Berliner klin. Woch., May 28, 1900.

³⁵ Med. News, Oct. 27, 1900.

³⁶ Med. Age, Sept. 10, 1900.

If itching is severe, menthol, 1 drachm, to 1 ounce of vaselin, should be applied locally.

B. Merrill Rickets³⁷ uses a submucous ligature for the destruction of rectal hæmorrhoids. This operation is very much simplified by a large needle describing more than a semicircle, carrying a moderate-size kangaroo-tendon submucously around the varices, which occupy the rectum as much as three inches above the muco-cutaneous border.

The three hæmorrhoidal vessels, arterial and venous, enter the rectum and perforate the rectal muscular tissue about three and a half inches above the sphincter ani. Great difficulty has been experienced in passing the needle to complete the entire circle submucously. To overcome this the needle is brought out at a point corresponding to one-half of the circle, again to enter at its point of exit and then to pass out at the point of primary entrance. In cases of but one or two hæmorrhoids one ligature of this character is sufficient. If there are many hæmorrhoids occupying the entire circumference of the rectum, as many of those submucous ligatures may be applied as are necessary. Then, too, it is not necessary to incorporate all of the varices within the ligature, because many of those which are not so constricted by the ligature will become so as a result of the trophic changes which ensue. Sometimes it will be found most convenient to introduce all of the ligatures before making them taut. By doing this the introduction of the needle is made with greater ease. Before this work is attempted the sphincter ani should be divulsed to the fullest degree with the fingers. Divulsion, once completed, the hæmorrhoids will at once protrude and are more easily encircled

by the ligature. As soon as the ligatures are made taut they (the hæmorrhoids) are then everted into the rectum. Sometimes it is desirable to puncture some of the larger ones that the distension may not be so great and for the purpose of lessening the amount of hypertrophied tissue within the rectum. After a few weeks atrophy takes place to such a degree as to allow the sphincter ani to resume its normal tonicity and to destroy completely all the objectionable varices which formerly existed.

The advantages of this operation are:

1. The impossibility of secondary hæmorrhage.
2. There is no tissue destroyed or sacrificed.
3. The loss of time is but little, if any, greater than when they are removed by the clamp and cautery.
4. Thus far there has been no infection.
5. There have been no fistula, abscess, or fissures resulting therefrom.
6. The pain is no greater, and, perhaps, less, than in other methods of ligaturing.
7. There is absolutely no stenosis.

A new operation for the treatment of internal hæmorrhoids in ambulant patients without sphincter dilation or anæsthesia is given as follows by C. G. Levison³⁸: The operation, while causing some pain, is practically a radical cure, and can be carried out in one or two sittings. In the average case there is usually one and seldom two varices, which cause most of the disturbance; and these can usually be treated in one sitting. There is no after-effect, the patient going about as usual. No dila-

³⁷ Med. Review of Reviews, July 25, 1900.

³⁸ Occidental Med. Times, Sept., 1900.

tion of the sphincter or administration of an anæsthetic is necessary. The only special apparatus required is the Kelly sphincteroscope.

The patient is placed in the knee-elbow position, and the sphincteroscope is introduced, which permits thorough inspection. After the localization of the pile or piles a piece of cotton saturated with a 10-per-cent. cocaine solution is applied for a few minutes; cocaine does not produce absolute anæsthesia, but it diminishes pain. The pile is then grasped with a Pean hæmostatic forceps and pulled down. Coincident with the drawing down of the pile the speculum is removed from the anus; it is allowed to hang on the handle of the hæmostat and, possessing considerable weight, aids in drawing the pile somewhat farther out of the anus. The pile is now extruding, held by the forceps, which are weighed down by the speculum; it is then ligated with a silk ligature as near the base as possible, after which the forceps and speculum are removed and the ligated pile is returned to the rectum. The patient's bowels must move daily. The pile desiccates and a practical cure results. If multiple varices are present, the operation is repeated; but one sitting and the ligation of one group of varices in the majority of cases usually suffices. This procedure can be carried out in the physician's office without any material inconvenience to the patient.

PERNICIOUS ANÆMIA.

Diagnosis.—R. C. Cabot³⁹ remarks that the distinctive features in the diagnosis of pernicious anæmia are as follows:—

1. A slow, insidious onset without recognizable cause.
2. Remarkable freedom from pain.

3. Striking absence of emaciation (in most cases).

4. The frequent presence of symptoms suggesting disease of the spinal cord.

5. Paroxysmal attacks of diarrhoea and vomiting, occurring without any obvious relation to diet or to treatment, preceded and followed by periods in which digestion and absorption were performed without apparent difficulty.

6. The tendency to great spontaneous improvement in all the symptoms, followed by rapid and inevitable relapse.

7. A reduction in the red corpuscles to a point below 2,000,000 per cubic millimetre, without a corresponding reduction in the hæmoglobin; a reduction in the number of leucocytes, and especially in the number of polymorphonuclear neutrophiles; the presence of large numbers of oversized, well-stained red corpuscles, some of them containing nuclei (megaloblasts), together with a tendency to abnormal staining reactions and to an oval shape in the red corpuscles.

The distinctive features in the diagnosis of secondary or symptomatic anæmia are:—

1. The presence of a well-recognized cause.

2. The steady progress of the symptoms, especially in malignant disease. If gastro-intestinal symptoms are present, they seldom improve spontaneously.

3. Emaciation.

4. The blood.

This tissue shows usually a relatively low percentage of hæmoglobin, and the number of leucocytes, and especially of polymorphonuclear neutrophiles, is apt to be increased, although this is by no means invariable. The size of the in-

³⁹ Amer. Jour. Med. Sciences Aug. 1900

dividual red cells is usually normal or diminished and their centres strikingly pale.

Oversized red corpuscles may be present and may occasionally contain nuclei; but, as a rule, they are greatly in the minority, and such nucleated red corpuscles as are present are chiefly of the normoblastic type. The tendency to abnormal staining reactions and to an oval shape in the red corpuscles is usually much less marked than in pernicious anæmia.

Practically, latent gastric cancer with anæmia is the only disease which anyone is likely to confuse with pernicious anæmia. In all such cases which have come under personal observation the symptomatology and course, as well as the condition of the blood, have been very different from that of typical pernicious anæmia. Cancerous growths are not usually accompanied by any considerable degree of anæmia until they have reached a considerable size.

The anæmia due to intestinal parasites, especially to the *Bothriocephalus latus*, is entirely indistinguishable from pernicious anæmia.

F. P. Henry¹⁰ says that in gastric cancer, when well advanced,—in fact, up to the point of death,—he has found the number of the red corpuscles to range between 2,000,000 and 3,000,000 per cubic millimetre, and sometimes to exceed the latter figure. On the other hand, he has never seen a case of pernicious anæmia in which, before death, the number of the red corpuscles did not fall far below 1,000,000 per cubic millimetre. As the result of many years' observation, it is thought that the differential diagnosis between pernicious anæmia and latent gastric cancer, and consequently the diagnosis of these two diseases, may be more cer-

tainly made by a blood-count than by any other method, not excluding a chemical examination of the gastric contents. The latter may be misleading, as, for example, in cases of pernicious anæmia associated with extensive atrophy of the gastric mucosa. In such cases anacidity, which is a characteristic of gastric cancer, is present, as a matter of course.

The possibility of the reduction of the number of the red corpuscles in gastric cancer to 40 or even to 30 per cent. of the normal—i.e., to figures characteristic of pernicious anæmia—is admitted, although such a condition has never been personally met with. If such a case should exist, it would more likely be one of pernicious anæmia complicated with gastric cancer, or one of gastric cancer complicated with pernicious anæmia, for the figures last mentioned are characteristic of pernicious anæmia, and not of gastric cancer.

In well-marked cases of pernicious anæmia, one observes: 1. A reduction of the number of the red corpuscles to a degree that is normal in the cold-blooded animals. It is the rule to find in this disease, when well advanced, less than 1,000,000 corpuscles per cubic millimetre. Figures like these are normal in the cold-blooded animals. 2. In pernicious anæmia many of the corpuscles are much increased in size, so much so that they have received the name of megalocytes. Many of them are quite as large as the corpuscles of the lizard and eel. 3. They often show a tendency to assume an oval outline, which is that of the corpuscles of the cold-blooded animals. 4. And, finally, to make the resemblance complete, nucle-

¹⁰ Amer. Jour. Med. Sciences, Aug., 1900.

ated red corpuscles are commonly present in the blood of pernicious anæmia.

According to Dyce Duckworth,¹¹ the diagnosis of pernicious anæmia is not difficult. The disease should be suspected in any case of profound anæmia which comes on insidiously. The possibility of some condition upon which the anæmia depends must be considered. The disease which most resembles it is cancer of the stomach, certainly in respect of the pallor of the patient; but the extreme wasting and gastric symptoms in the latter are generally prominent. The fat is usually retained in all forms of anæmia, apart from cancer and tuberculosis.

Chlorosis may simulate pernicious anæmia. The age and sex help here. The condition of the blood is also different, since there is much greater deficiency of hæmoglobin and less diminution of red globules in chlorosis. Poikilocytosis is also rare in the latter. In splenic anæmia the enlarged spleen is a marked feature. There is a form of grave endemic anæmia secondary to the parasitic attacks in the intestines of the *anchylostoma* or the *bothriocephalus*. If there is any suspicion of their presence, the faeces must be examined for ova, and these cases may yield to appropriate treatment for the respective parasites.

Etiology.—C. L. Dana¹² states that all the degenerative diseases are apparently diseases of lysis, not of genesis. The full-grown cell is attacked, not the embryonal cells. So in pernicious anæmia it is now generally agreed that it is not the blood-making organs, but the finished blood, which is attacked. It may be objected that the blood is not a tissue, like muscle or nerve or liver, but a tissue-feeder. Still, the analogies are sufficiently perfect. The red blood-

cell is a fully-developed anatomical unit with a definite life-history which must run a certain course in order that it may perform its functions. If it dies too soon through lack of original endowment of vitality, the process is the same as that of the degenerating muscle of nerve- or kidney- cell, which lives but forty years instead of seventy. The argument, to be sure, would make the original defect lie in the blood-making organ. This is not able to turn out a cell that can live its proper life, though it may mature and become for a time a healthy cell. This point of view is personally accepted, and pernicious anæmia is made a disease in which, owing to bad endowment, those organs begin to fail in their work after a certain number of years. This does not affect the practical, accepted fact that the anæmia is due to the killing or dying off of cells which start out apparently in proper number and appearance.

It might be asked: "Why should we not have pernicious anæmia in old age if this doctrine is true, since in advanced life other tissues grow old?" As a matter of fact, there is the same general atrophy of the blood at that period, but nature has arranged it that fatal degenerative diseases occur mostly before or at middle life. It seems that after that point is safely passed it means that the individual has received usually a well-balanced endowment and that the machine will run on with a fair degree of certainty, so far as degeneration is concerned. After this period it is mainly secondary to the arterial sclerosis and defective vascular supply.

In a personal case the history of the family was most striking, and showed

¹¹ Brit. Med. Jour., Nov. 10, 1900.

¹² Med. Record, Dec. 1, 1900.

an extraordinary lack of vitality on the part of the generation to which the patient belonged.

Kinnicutt⁴³ says that on Dana's theory it would be difficult to explain the spontaneous and very rapid and marked improvement which is often seen in cases of pernicious anæmia, with or without treatment. A case of pernicious anæmia which has been regarded as hopeless might begin to improve and apparently result in recovery. Clinical experience points to the certainty of a relapse, however, even if the period of freedom lasts two or three years, or even longer. In these cases the blood occasionally recovers its normal condition, so far as our present methods of examination permits us to judge. Such an improvement is difficult to explain on any supposition. Probably the most plausible is that which attributes the anæmia to the presence of a toxin.

Prognosis.—In 90 cases of pernicious anæmia R. C. Cabot⁴⁴ has accurate data as to the course and progress of the disease. Out of these 90 only 20 were progressive. In 70 there was one or more remissions in which great improvement took place, the symptoms for the most part disappearing, the patient's color and blood-count becoming nearly or quite normal. Twenty-one of these cases were able to return to work, and felt as well as ever.

Pernicious anæmia is not a progressive disease, but comes upon the patient in successive waves, or paroxysms.

Of the 70 cases personally followed from start to finish, the majority have lasted less than two years; only 12 lasted more than 3 years, and only 2 more than 4 years, the longest being 5 years. The number of relapses varied from 2 to 5 or 6. Such relapses were especially apt to occur in the early spring. Remissions may occur even after the red cells have fallen as low as a half-million per cubic millimetre.

Out of the whole series there has not been one genuine recovery.

Treatment.—Albert Abrams⁴⁵ considers arsenic a true specific in pernicious anæmia. It may be given in the form of Fowler's solution, beginning with 3-minim doses, well diluted, after each meal. It is increased 1 or 2 minims daily, according to the urgency of the case, until 25 or 30 minims are taken three times a day. A safer rule is to use it to the point of toleration and maintain it there until the blood-examination shows the desired changes. The appearance of toxic symptoms—such as cedema, suffusion of the eyelids, and gastro-intestinal inflammation—is a signal for the temporary discontinuance of the drug. Assimilable food and rest are indispensable adjuvants. To overcome the reduction in the quantity of blood, normal saline solution should be given in the colon or subcutaneously.

⁴³ Med. Record, Dec. 8, 1900.

⁴⁴ Amer. Jour. Med. Sciences, Aug., 1900.

⁴⁵ Med. Record, Apr. 28, 1900.

Cyclopædia of Current literature.

ABDOMINAL VERSUS VAGINAL HYSTERECTOMY.

All things being equal, the abdominal route offers advantages for a more complete hysterectomy than the vaginal route. First, one is better able to see what he is doing; second, he is much better able to control hæmorrhage than by the vaginal route; there is less liability of slipping of the ligatures, and if they do slip they are got at more easily than by the vaginal section; third, the danger to the ureters is minimized, and if injured the opportunity for repair is better, while, if injured by the vaginal route, one would have to do an abdominal section to make the repair; fourth, the prevention of sepsis is more certain by abdominal than by vaginal section, aided, in the first instance, by the Trendelenburg position, which gives opportunity for full protection of the intestines and peritoneum, while in the latter the opportunity for protection is limited, as it is an utter impossibility to render perfect asepsis in the vagina where there has been a long-standing infectious disease. H. O. Walker (Physician and Surgeon, Nov., 1900).

ANÆMIA OF YOUTHS AND YOUNG ADULTS.

Treatment.—In obstinate cases of anæmia a combination of fatty food, malt extract, rest in bed, and massage has rarely failed to produce a prompt and durable removal of all the symptoms of anæmia. It is found by experiment that one hour's massage will immediately increase the red blood-cells, in samples of drawn blood. The condition returning in a few hours, repeated massage is followed by a more lasting improvement, until, after several weeks

of massage treatment, with milk diet, a permanent improvement is found in the blood-cell count as well as in all the other clinical signs of anæmia. A. W. Perry (Pacific Med. Jour., Dec., 1900).

ANEURISM, AORTIC.

Diagnosis.—The diastolic thud is a sign of the greatest diagnostic value in the diagnosis of thoracic aneurism, since it is present in no other condition. Tracheal tugging also, when present, invariably indicates aortic aneurism. The only fallacy of this sign is when there is a new growth almost surrounding the aorta and attached to the trachea; movement might thus be communicated. J. K. Fowler (Lancet, Dec. 15, 1900).

APPENDICITIS.

Prognosis.—The following general statements are borne out by all comprehensive reports:—

1. Patients operated on at the very beginning of symptoms pointing to the appendix almost all recover.

2. Up to about the third day, unless the cases are fulminating, even severe cases of appendicitis show a low mortality, varying up to about 15 per cent.

3. After the fourth day the patient has either passed the immediate need of operation or it is too late to operate except with the idea of affording the benefit of a desperate chance. Few surgeons advise amputation of the appendix at this stage, the object being to evacuate pus or to attempt to limit the septic process by suturing, packing, etc.

4. If one includes as appendicitis all cases with symptoms calling attention to McBurney's point,—that is, all on

which extremely radical surgeons would operate, if they had the chance,—the results of medical and surgical treatment are about equal.

5. A good many cases which have been "cured" by medical treatment relapse. Sometimes these relapses are severe and even fatal: sometimes one is justified in doubting whether they are more than slight attacks of colic, due to dietetic indiscretions and the importance of which has been overestimated by the surgeon.

6. On the other hand, some cases that have been "cured" by amputation suffer from recurrences which would be considered attacks of appendicitis if it was not known that the appendix was lacking. Not a few cases for supposedly primary appendicitis have been performed at which the appendix could not be found.

7. Radical operation, although not very dangerous immediately, may be followed by hernia. A. L. Benedict (*Med. News*, Dec. 1, 1900).

CATARACT, IMMATURE.

Conclusions regarding immature cataract are:—

1. Certain lenticular opacities, most often situated in the naso-inferior quadrant of the lens, occasionally are practically stationary, and may be designated "non-progressive." They do not handicap the patient's ocular abilities, and may, with propriety, be separated from the class to which the name incipient cataract is ordinarily given.

2. Certain lenticular opacities undoubtedly depend, as Risley and others have shown, on what may be designated "disturbances of the choroid" as apart from active and actual choroiditis; and their progress is sometimes apparently checked by measures—optical,

CATARACT, IMMATURE.

local, and general medicinal—which restore the choroid coat to normality. Such measures do not, however, remove from the lens the opacities which have already formed when the patient comes under treatment.

3. Certain lenticular opacities which appear in association with diabetes mellitus, nephritis, lithæmia, and arteriosclerosis—particularly the last two diseases—are sometimes apparently retarded, like those in No. 2, by measures which are suited to the patient's general condition in connection with local and optical therapeutics; but these measures never dissipate the lens-lesions already present.

4. Certain lenticular opacities produce not only prodromal myopia, but very high degree of astigmatism, the correction of which may result temporarily in a surprising improvement in visual acuity.

5. Certain lenticular opacities cause an obscuration of vision that may be largely dissipated temporarily by providing the patient with glasses moderately tinted which give the best visual acuity during mydriasis and maintaining this mydriasis with a mild mydriatic. Sometimes, under these circumstances, the mydriasis seems to hasten maturation. This fact should be explained to the patient.

6. Certain lenticular opacities, especially in the form of striae of refraction, cause an obscuration of vision, which is somewhat relieved by maintaining a mild myosis with weak solutions of one of the myotics.

7. If the vision of eyes suffering from incipient cataract of the nuclear type is improved by mydriasis, this is not a sufficient indication for optical iridectomy, unless the patient finds by observation that the increased visual acuity,

as noted by test-type examination, is also advantageous in pursuing his ordinary occupation.

8. The extraction of unripe cataracts is preferable to any of the ordinary operations for ripening cataract.

9. There is no evidence that electricity has the slightest influence in checking the rate of progress of incipient cataracts, or in dissipating the opacities which have formed.

10. If there is any evidence that massage of the eyeball favorably modifies the rate of development of cataract it is still very insufficient; there is some evidence to show that massage sometimes hastens the opacification of the lens. The subject demands further investigation.

11. There are no "specific remedies" for the treatment of cataract, and there is no reliable evidence that drugs exist which cause the absorption of partially- or fully- formed cataracts.

12. All lenticular opacities, unless perhaps those which belong to the so-called non-progressive group, should be regarded as indications for a thorough investigation of the patient from the general as well as the ocular standpoint, and for an employment of remedial agents—optical, local, medicinal—according to the findings. G. E. de Schweinitz (*Jour. Amer. Med. Assoc.*, Dec. 8, 1900).

CHLORALAMID IN INSOMNIA.

Where repeated doses of a sleeping-potion are to be administered, chloralamid is without a rival, as it does not depress the heart or irritate the stomach, nor paralyze the intestines and stupefy the next day. Its slightly bitter taste may be disguised by the following formula:—

R Chloralamid, 2 drachms.

Whisky, 1 ounce.

Syrup of raspberry, 1 ounce.

M. Sig.: Half-teaspoonful dose.

The usual dose of chloralamid is 15 to 60 grains one half-hour before bedtime. It takes effect usually in one hour. S. V. Clevenger (*Med. News*, Dec. 8, 1900).

CONGENITAL STRIDOR OF INFANTS.

Etiology.—The most important conclusions regarding the congenital stridor of infants may be stated as follows:

1. That the primary element in the causation of this condition is a disturbance of the co-ordination of the respiratory movements, probably due to some developmental backwardness of the cortical structures which control them.

2. That the change of form found is merely an exaggeration of the normal infantile type, and is mainly, if not entirely, the result of a constantly-recurring sucking-in of the upper aperture of the soft larynx, which is induced by the ill co-ordinated and spasmodic nature of the breathing. That it is, in fact, an acquired deformity strictly analogous to pigeon-breast.

3. That there is no proof that any congenital malformation of the upper laryngeal aperture exists in these cases.

4. That the supposition of a congenital deformity is not essential to account for the symptoms, inasmuch as normal babies crow in a very similar manner when they are coming out of chloroform.

5. That the sounds are not produced in the pharynx. This is proved by the high-pitched phonic character of the crow, and also by the fact that the stridor persists, not only when the nostrils are closed, but equally when the

mouth is occluded by the nipple, when the tongue is depressed by a spatula, and during yawning. That they are not produced in the trachea by compression exerted by a large thymus or enlarged lymphatic glands, we conclude on two grounds: First, because in none of the fatal cases of congenital stridor recorded have we seen enlargement of the thymus or lymphatic glands noted; and, secondly, because in two cases which we have examined, in which compression of the trachea by enlarged bronchial glands was found after death, the symptoms were of a very different type. In these cases the stridor was mainly expiratory, the larynx did not move up and down with respiration, as it does in cases of intralaryngeal obstruction, and there was much greater respiratory distress. The stridor is probably produced partly in the larynx proper, and partly at the abnormally-approximated ary-epiglottic folds.

6. That the neurosis causing the symptoms has not, in our experience, seemed to depend on the presence of adenoid growths or other obvious causes of reflex irritation. John Thomson and A. L. Turner (*Brit. Med. Jour.*, Dec. 1, 1900).

DIABETES.

Diet.—Proteid feeding is often overdone in diabetes, and it frequently happens that the amount of sugar in the urine decreases on cutting down the consumption of proteid. The reason for this is because the proteids are so split up in the body that every one hundred parts of this food principle yields forty-five parts of carbohydrate. For exact work in the selection of a dietary for the diabetic, gluten-bread is unsuitable because it always contains some carbohydrate. Most patients soon learn

DIABETES, DIETETIC TREATMENT OF.

to eat with relish olive-oil as a dressing, with or without vinegar, on lettuce or some other green vegetables. Cucumbers or greens may be used instead of lettuce. The eggs may be hard boiled and cut up and used on the salad. Equivalents of other sugar-free alcoholic beverages may be substituted for the Riesling wine. If the patient objects to the use of alcohol in any form, equivalent caloric values must be obtained by the addition of more proteid or fat, one or both. Sweet wines are not to be permitted.

It is well for the physician to give a list from which a selection can be made, but in doing this the amount of each article must be specified and the caloric value must not be neglected. V. C. Vaughan (Physician and Surgeon, Nov., 1900).

DIABETES, DIETETIC TREATMENT OF.

Those cases which can be called the mildest will cease to eliminate sugar in the urine when the ingestion of it is forbidden and the eating of the starches is limited.

The moderate cases are those from whose urine sugar can be removed, provided they are deprived of foods containing both sugar and starch. The severe cases are those from whose urine sugar cannot be removed by depriving them of carbohydrate food.

It is necessary to prescribe both the character and the amount of food which diabetics shall take. In order to ascertain to which of these categories a given case belongs, a patient must be placed on a diet from which sugars and starches are excluded. A strict diabetic diet—that is, one containing no carbohydrates—should not be adopted too suddenly.

From the beginning all sugar should be forbidden, and the amount of starchy food eaten should be diminished. The latter ought to be lessened day by day during the first week of treatment, so that all will be excluded, if the patient's condition permits, by the end of that time. Simultaneously with the diminution of carbohydrate food, albuminoids can be increased, and especially fats. The amount of urine and the percentage of sugar which it contains should be estimated at least every second or third day.

Gerhardt's test with perchloride of iron must be constantly made. If it gives a positive reaction, or if there is evidence of acetone or diacetic acid in the urine a greater modification of diet should be made. Indeed, it is safest to enforce Ebstein's rule that under these conditions the amount of albuminoids eaten should be lessened and the amount of carbohydrates increased. If the reaction is found when severe cases first come under treatment sugar only should be excluded from the diet and the amount of albuminous food should be limited. At the same time the intestines should be cleaned and albuminous indigestion—if it exists—corrected. Alkalies and alkaline mineral waters are also useful under these circumstances.

Excellent results can often be had by intermittently restricting the diet closely. From two to six times a year this should be done for from two to four weeks. In most cases it is better on one or two days in every week to place patients on a diet which is limited in quantity and much restricted in character. Water should at these times especially be drunk freely. Fats must be urged on diabetics. Butter should be eaten freely. Olive-oil should be used

generously on salads. Fat meats—such as ham, bacon, pork, and mutton—should be eaten.

Meats can be permitted at all times, except liver, and oysters, mussels, and such shell-fish as consist chiefly of liver. Meats should not be cooked with flour or bread-crumbs. Eggs are especially useful. Meat, eggs, and fish must constitute the staple of a diabetic's diet. Cheese of all kinds is permissible. Cream can be permitted with benefit to most patients. Milk can be permitted diabetics, except when a very strict diet is prescribed.

The following are among the best-known substitutes for bread: Gluten, almond, sago, cocoa-nut, pea-nut, and Chicago Sanitary Flour. From the last and from cocoa-nut-flour almost all trace of sugar, which is the carbohydrate present, can be removed by raising bread with yeast. The bread made of nut-flours should be used very moderately, for it contains so much fat that it is not readily digested. It is well to shift from one nut-flour to another and to make a variety of forms of bread. The following receipt is recommended by O'Donnell as a substitute for home-made bread. It contains no starch nor sugar: Six eggs are to be beaten thoroughly; add a teaspoonful of baking-powder and a quarter as much salt; again beat the eggs. Pour the mixture into hot waffle-irons smeared with butter; bake in a hot oven. Eat hot with butter or flavor with cheese or nuts.

Substitutes for home-made bread should only be used while patients are on a strict diet.

The following vegetables can be eaten by diabetics: Cress, cabbage, lettuce, sprouts, endives, broccoli, spinach, chicory, cucumbers, mushrooms, arti-

chokes, green French beans, sauer-kraut, cauliflower, dandelion, sorrel, asparagus, onions, leeks, tomatoes. Root vegetables, such as potatoes, carrots, and turnips, as well as beans, pease, and lima beans, must be forbidden. When the diet is relaxed or the case is a mild one a potato can often be permitted. Cranberries, strawberries, raspberries, blueberries, and oranges can be permitted in mild cases. Ebstein recommends peaches and apricots. All fruits should be forbidden to those who are on a strict diet. Dried fruit, preserved fruit, and most dishes flavored with or garnished with fruit must at all times be proscribed. A measured amount of nuts—except chestnuts—can be allowed in mild cases.

Diabetic patients can be permitted to drink water as freely as they desire. Tea and coffee can also be allowed, providing no sugar is used in it and little of cream. The frequent or constant use of alcoholic beverages is undesirable.

The following *menu* will illustrate what should be prescribed while a strict diet is maintained. On "fast days" a limited amount of these same foods should be recommended.

BREAKFAST.—Tea or coffee without sugar or cream, one egg and bacon, and two or three slices of nut-bread with butter (Chicago Sanitary Flour or similar substitute for wheat-flour).

DINNER.—Bouillon or broth; beef, mutton, or chicken; spinach, or asparagus, or wax beans; salad of lettuce or tomatoes, with cheese; black coffee without sugar.

SUPPER.—Tea or coffee without sugar or cream; meat or fish, or mushrooms; a salad of tomatoes or lettuce, or chicory, etc.; two or three slices of nut-bread.

At bed-time or in the evening an egg-

lemonade made with saccharin can be given.

Use as much butter as possible on bread and oil on salads; eat by preference fat meats.

When patients keep a "fast day" it is best to prescribe about two meals a day: one at breakfast-time and one about six in the evening. At noon, if it is desired, an egg-lemonade made with saccharin can be taken. The amount of food eaten at the two meals should also be limited. N. S. Davis (*Jour. Amer. Med. Assoc.*, Dec. 8, 1900).

ELECTROLYSIS IN TREATMENT OF TUMORS.

The electrolytic treatment of benign and malignant tumors, like their etiology, is based on radically-different principles.

In treating malignant tumors by electrolysis the aim is to produce in one operation, by the action of the anode, the necrotic destruction of the tumor and of all the infectious germs of the surrounding tissues. This must be accomplished in the first stage of the disease, so long as the tumor is local, the lymphatic glands are not yet affected, and the distant organs are free from deposits. The effect of such an electrolytic operation is the disappearance of all morbid symptoms, and a complete recovery without relapses. W. B. Nefel (*Med. Record*, Dec. 8, 1900).

EMPHYEMA FOLLOWING LOBAR PNEUMONIA.

It is impossible to state with accuracy the percentage of cases in which pneumonia is followed by emphyema, but it is interesting to note that, out of 325 consecutive cases of emphyema in the medical wards of Guy's Hospital, there were 41, or 12.6 per cent., in which it ap-

peared that the empyema followed a lobar pneumonia.

By far the most important aid in diagnosing empyema that has followed pneumonia is the temperature. The usual thing, if empyema follows, is for the temperature to fall when the crisis takes place, for it to remain down two or three days, for it then to rise again, so that it soon becomes from 2° to 4° or 5° above normal in the evening and about 1° or 2° in the morning; this continues until the pus is evacuated. Sometimes the apyrexial interval is only one day, sometimes it is four or five days, and sometimes there is not strictly an apyrexial interval, for the temperature does not fall at the crisis to normal, but only to nearly normal, and then soon begins to rise again, so that, instead of an apyrexial interval, we have an interval of lower temperature. There is a fall of temperature at the pneumonic crisis with a subsequent rise in about a third of all the cases in which empyema followed pneumonia.

In many cases there is no apyrexial interval, and probably in some of these pus is present from quite early in the illness.

There is a third group in which also there is no interval during which the temperature is lower, but in which there is some complication present that may well explain this. Pericarditis and malignant endocarditis may both of them be associated with empyema after pneumonia, and if they are present early in the case they may prevent the fall.

Although the study of the temperature is most important in helping to diagnose an empyema following pneumonia, it is not an infallible guide, for, in the first place, the temperature may remain up for some time and yet no pus be present.

In the examination of the chest, in the first place, attention should be directed to the great importance of local tenderness. Very often people with deep-seated small abscesses have one spot pressure upon which with the finger gives rise to a slight feeling of pain. Such a spot, if present, should be chosen for insertion of the exploring needle, and may enable one successfully to find pus that would otherwise probably have been missed. W. Hale White (*Lancet*, Nov. 10, 1900).

EROSIONS OF NIPPLES.

Treatment.—The slight erosion on the upper surface of the nipple so common in primiparous nursing women heals readily when touched with a strong solution of nitrate of silver, while the fissures and cracks at the base of the nipple improve at once when collodion or compound tincture of benzoin is applied, and a glass nipple-shield used for a day or so, or, in the bad cases, suspension of nursing on the afflicted breast for twenty-four hours. The women should be instructed to notify the physician as soon as one of these lesions of the nipples appears, so that active treatment may begin at once. She should be warned to let her physician know as soon as a localized tenderness in the breast appears. When pus has once reached the glandular tissue, incision and drainage are necessary. Harrison D. Jenks (*Physician and Surgeon*, Nov., 1900).

ERUPTIONS RESEMBLING THOSE OF ROTHELN.

There are some forms of erythema multiforme which, by an inexperienced observer, might be mistaken for that of rotheln. These forms of erythema are those which occur in small papules. These erythemas fail to show the cress-

centic arrangement of papules, and in places there is a blotchy character to the eruption. Erythemas also have an ecchymotic or bluish color, especially at the centre of the papule. In some cases a papular rose-colored eruption caused by a drug or antitoxin might be mistaken for the exanthema of r  theln. Scarlet fever does not affect the face so distinctly, and on the trunk scarlet fever shows the acute dermatitis as a background for the punctate character of the general eruption. In scarlet fever the small punctate spots have no particular arrangement; in r  theln, if the papules have the minute size of those of scarlet fever, the skin between the papules has a normal color. In all of these cases, also, one can make out a crescentic arrangement of the papules.

The exanthema of measles of the discrete type is the only eruption which so closely resembles that of r  theln as to be constantly mistaken for it. In all such cases the buccal mucous membrane has been the crucial test personally. As the disease progresses, one does not note in r  theln the tendency of papules to become confluent over any great extent of surface, as seen in measles.

R  theln is a mild affection, resembling very much varicella. The general condition of a patient is that of a person suffering only a slight malaise. It requires little or no treatment. Parents should keep the children in-doors until all signs of the exanthema have disappeared. In the winter months the children are kept in-doors about a week after the first day of the eruption. Henry Koplik (*Jour. Amer. Med. Assoc.*, Nov. 10, 1900).

HEAT-STROKE AND HEAT-EXHAUSTION.

Treatment.—Heat-exhaustion requires rest and stimulants, head low.

and body recumbent. If able to swallow, an ounce of brandy and 20 drops of tinctura opii should be given at once. If unable to swallow, a larger dose is to be given per rectum, or whisky and tinctura digitalis hypodermically. No ice or bleeding is to be used. Heat-fever is treated in different ways: ice-cold pack or cold douche. In India the patient is removed to the shade, and cold water is thrown on him after removing all clothing. Cold water is to be thrown into the rectum. If depression comes on, stimulation should be resorted to. If convulsions appear, hypodermic injection of morphine is of value. Ice should be put to the head, hot bottles to the feet, and ice-bags to the spine. Bleeding may be of use. C. C. Herman (*Penna. Med. Jour.*, Dec., 1900).

HEROIN.

Clinical material treated with heroin consists of 38 cases treated in the hospital and 14 in private practice, and comprises pulmonary tuberculosis, bronchitis, asthma, pneumonia, laryngitis, coryza, rhinitis, and intercostal neuralgia. Under the administration of heroin hydrochloride the relief of pain, cough, and dyspnoea was obtained in from one to five days. Among the 52 cases heroin hydrochloride caused nausea and giddiness in only 2 after the administration of $\frac{1}{4}$ grain; but this disappeared promptly after the dose was reduced to $\frac{1}{12}$ grain. In 1 case it produced gastric disturbance similar to morphine when given on an empty stomach, but this was not observed when it was administered after meals. In 3 cases it caused constipation, which was relieved by the addition of $\frac{1}{8}$ grain of calomel to each dose. The after-effects observed in a few instances

appeared only after large doses of $\frac{1}{6}$ grain, and promptly vanished after the dose was reduced to $\frac{1}{12}$ grain.

The very thorough investigations made with heroin hydrochloride shows that this drug is a most valuable aid to the medical profession. In pulmonary affections accompanied with coughs it may be ranked as a specific, while its analgesic qualities in neuralgia and its antispasmodic effect in asthma and whooping-cough have been so well established as to entitle it to a prominent place in the treatment of these affections. Bernard Lazarus (Boston Med. and Surg. Jour., Dec. 13, 1900).

HYPERACIDITY OF THE STOMACH.

Treatment.—To reduce the acidity of the contents, substances which combine with or neutralize the acid are to be administered. Such substances are, first, proteid food-substances which combine with large quantities of acid; and, second, alkalies which neutralize the acid present. The excess of acid can be perfectly controlled by the food with small quantities of alkalies, provided these substances are administered in the proper manner and at the proper time.

The system of treatment personally used in most cases is built upon these lines: The patient is given a diet of a calorie worth sufficient for the weight and conditions containing as high proportion of proteid foods as comfortable for the patient. (The average patient with stomach trouble is eating less than half of a sufficient diet.) This diet is separated into six daily meals, the constituents of each meal, with some alternative choice, being prescribed. Starches should be limited, and of carbohydrate foods sugars or predigested

starches, dextrinized flours, as avenacia flour or Horlick's food, used as much as possible, since starch digestion in the stomach is impeded in these cases. For all symptoms of disorder, as distress or eructations, some proteid, as a raw egg, is to be taken. An alkali, bicarbonate of soda in half-teaspoonful doses, or 15 grains of magnesic hydrate, may be taken in addition to food or in place of it for the relief of symptoms. In some cases large amounts of alkali, 3 drachms of bicarbonate of soda, must be used in the twenty-four hours. Three pints of water are prescribed to be taken in small amounts at a time throughout the day. In addition, general rules in regard to baths, exercise, the bowels, the work, and general manner of living are laid down in writing. Debility must be treated by tonics. Nux vomica is a most useful agent. Where anemia is present by blood-tests iron should be given. Chlorosis is not infrequently associated with hyperacidity.

Many cases of hyperacidity are intermittent or paroxysmal. These cases it is necessary to treat locally only during the period of attack, while a general method of *régime* should be employed constantly to prevent recurrence. In some cases the acidity is only after one meal, as, for example, dinner. This must be borne in mind in the determining of the diagnosis, as well as in the treatment.

In a certain proportion of cases the treatment must be followed in a general way permanently. It is a rare exception to see a case of hyperacidity which does not yield to this treatment when properly applied. In personal records less than 10 per cent. of cases returned as not relieved after trial of this simple treatment of *régime*, diet, and alkalies. In these obstinate cases lavage is often

a useful adjunct to treatment. After a few weeks of lavage, combined with a very special diet worked out by experience with the case, the patient is raised to the regular *régime*. In these cases it is often necessary to feed small amounts frequently and to use concentrated food-substances, as the Leuke-Rosenthal meat solution, Mosquera beef-meal, or somatose, which have a high capacity for combination with hydrochloric acid. In some obstinate cases nitrate of silver has been used for internal treatment and for lavage with success. H. F. Hewes (Boston Med. and Surg. Jour., Nov. 29, 1900).

HYSTERIA.

Treatment.—The bromides and other sedatives allay the hyperirritability and thus tend to relieve some of the symptoms, but in the treatment of the main constitutional disturbance the bromides are certainly contra-indicated.

The treatment ought to be nutritional in character. Wholesome food, regularly taken, will go a long way to correct the depraved condition of hysteria. Tonics, such as strychnine, phosphorus, iron, or arsenic, may assist, but only inasmuch as they regulate the nutrition. A proper exercise of the will-power aids in establishing the flow of nerve-force in its normal course.

Electricity stimulates a healthy metabolism, brings the molecule up to its proper potential; regulating the circulation, it maintains that equilibrium of blood-supply and of nervous activity which is essential to general and local health; promoting excretion, it eliminates from the system the results of disintegration, and thus prevents auto-intoxication. George Adam (Pacific Med. Jour., Dec., 1900).

INFLUENZA IN ADULTS.

Treatment.—In a patient suffering from uncomplicated epidemic influenza attacking the respiratory system, free and comfortable expectoration should be obtained by ammonium carbonate in 5- to 10- grain doses, repeated as frequently as the situation may require, each dose to be given in 2 ounces of milk. The irritation of throat and nose is best relieved by sprays of 10 drops of eucalyptol or 5 to 10 grains of menthol to the ounce of alcohol or other suitable liquid hydrocarbon. The patient should be kept in a room of equable temperature, not too hot, and his diet should be a fluid one and as nutritious as possible. If the ammonia is not well borne, strychnine, either as good-sized doses of tincture of nux vomica or strychnine itself as a sulphate or nitrate, should be administered. Generally the patient is better without alcohol.

When pneumonia occurs, the nitrites, preferably nitroglycerin, are to be used, and increasing and frequently-repeated doses of strychnine must be carried out until the patient is convalescent. For a slowly-resolving pneumonia and for a tardy convalescence from bronchitis, no drug yields better results than creasote carbonate, 30 or 40 drops given in sherry several times a day.

The key-note to the situation is supporting the patient and eliminating the morbid products.

In the gastro-intestinal form of epidemic influenza the pain, nausea, and vomiting all call for relief. At the outset a thorough evacuation of the bowels is to be obtained by calomel given in small doses frequently repeated. Intestinal antisepsis can be accomplished by the organic bismuth salts: naphthalate, iodophthalinate, or the subgallate.

High intestinal irrigations aid much in the elimination of the toxins. Frequently rectal alimentation is urgently demanded. Sometimes small amounts of zoolak or small amounts of a good beef-extract will be retained when taken by mouth.

In the neuro-muscular type of influenza quinine has been lauded for the bone-breaking pains. Equinine seems somewhat more efficient. A large part of the suffering in this form of influenza may be relieved by a combination of coal-tar products and salicylic acid or some of its forms without incurring dangerous depression in the circulatory and respiratory apparatus. This may be accomplished by alternating phenacetin or acetanilid, of which the depressing action upon the heart is neutralized by caffeine, with acetanilid and methyl-salicylate, or salipyrin.

A remedy which affords great relief from the headaches and backaches is gelsemium, which may be pushed until slight ptosis appears, when the limit of its physiological activity has been reached.

For urinary insufficiency no better remedy can be found than continuous enteroclysis with decinormal saline solution at a temperature of 110° F. R. W. Webb (*Med. News*, Dec. 15, 1900).

INFLUENZA IN CHILDREN.

Treatment.—A purgative dose of calomel should be given. The patient should be kept in bed, the temperature of the room at 70° F. or more at first, and the diet should be scanty and fluid at first—milk, cereals, farinacea, water, lemonades, and broths. The further development of the case will gradually indicate eggs, and perhaps—in a few selected instances only—alcohol in addition to other medicinal stimulants.

If there be a high temperature, cold water is not indicated either as a bath or as a pack. The irritating cough which often requires opiates is rather increased than soothed by it, the characteristic bronchitis of influenza does not bear it, the frequent copious perspiration contra-indicates it, and so does a weak heart under all circumstances. When there is much muscular pain and restlessness, a warm bath is often beneficial. Hot baths should be avoided unless a very short one in an occasional collapse. While many common cases of pneumonia, with fair circulation, are apt to do well with cold packs, influenza-pneumonias do better with warm ones.

According to Ditmar Finkler, of Bonn, quinine occupies a front rank. In the German collective-investigation reports some praised quinine as giving brilliant results, while others were greatly disappointed in its effects.

Whenever vomiting is severe, temporary abstinence and afterward rectal alimentation find their indication. Alcohol greatly diluted, peptones, mild salt solutions, and liquid albumins are readily absorbed in the colon, which, even in the smallest infant, is made accessible by elevating the hip and moderating the current by not raising the irrigator more than a foot above the anus. Peptonized milk, egg, and broths are absorbed in part. In severe vomiting best relief is given by morphine, rarely by ice, either internally or externally. A tablet of 1 milligramme may be thrown into the mouth of a child of two to four years, there to be absorbed, or $\frac{1}{2}$ drop or 1 drop of Magendie's solution may be administered in the same manner without dilution.

There is hardly a disease which has as great a tendency to cause exhaustion

and numerous other nervous symptoms, from languor to heart-failure, as influenza.

One of the best stimulants, useful in the gravest of all cases which are attended with collapse and heart-failure, is Siberian musk. A child of two years should take of the 10-per-cent. tincture 5 to 10 minims every half-hour until half a dozen or a dozen doses have been taken. Musk, together with large, hot enemata, will lead over many a difficult pass. A. Jacobi (*Med. News*, Dec. 15, 1900).

LEUCOCYTE-COUNT IN SEROUS PLEURISY.

The leucocytes were counted daily in 20 cases of primary serous pleurisy from entrance to discharge or recovery. Their number exceeded 10,000, the normal limit, in only 13 of 224 counts. Nine of these occurred in 1 case with a secondary pneumococcic infection. Nine of the cases were certainly tubercular, the others probably so. In the cases certainly tubercular the count never exceeded 10,000. There was no evident relation between the duration of the disease or the temperature and the number of white cells. Blood and microscopical amounts of pus in the fluid did not affect their number. There was no apparent relation between the amount or progress of the fluid and the leucocyte-count.

Serous pleurisy is only exceptionally accompanied by an increase in the number of white corpuscles, and then intermittently. The white count is of value in two ways in the diagnosis of serous pleurisy: If the physical signs are doubtful, and there is no leucocytosis, the condition is almost certainly not pneumonia or empyema, but serous

pleurisy. If there is a serous pleurisy and a continuous leucocytosis, some complication is present. H. L. Morse (*Boston Med. and Surg. Jour.*, Dec. 13, 1900).

LIME-BURNS OF THE EYE.

Treatment.—The first thought in the treatment of lime-burns should be directed toward the removal of the offending substance. The lids should be carefully everted and every part of the conjunctival surface carefully cleansed with oil; but if this be not feasible, a diluted solution of vinegar should be instilled, or even an excess of water may be employed.

Fuchs recommended dropping a concentrated solution of sugar into the eye after lime-burns, since cane-sugar forms an insoluble compound with lime.

After the eye has been thoroughly flushed and the chemical neutralization has been accomplished, any solid particles should be removed with a pledget of linen or with a forceps. The whole conjunctival sac should then be cleansed with some mild antiseptic, preferably boric acid (10 grains to 1 ounce), and iced compresses constantly applied until its inflammatory reaction has subsided. As the iris is likely to be involved, if the cornea be at all affected, a strong solution of atropine should be dropped into the eye to dilate the pupil. Cocaine may be employed if there be much pain, or a subcutaneous injection of $\frac{1}{4}$ grain of morphine and $\frac{1}{16}$ grain of atropine over the eyebrow will afford great relief to the patient. Subsequently, protection of the eye, with the use of olive- or castor-oil dropped into it, will best promote the healing process. W. C. Posey (*Therap. Gaz.*, Dec. 15, 1900).

MAXILLARY BONES, NECROSIS OF.

Treatment.—In necrosis of the maxillary bones there must be general supporting treatment: good food, open air, tonics, codliver-oil; in the acute stage free catharsis, and if the pain be severe opiates serve a good purpose. Locally, cold applications may be useful at first, while later heat will be of more service. Scarification, free blood-letting, counter-irritation, hot-water bags, all are of value. If pus be present, the indication is to give free and efficient drainage. After the acute symptoms have subsided the pus should be washed out frequently with a permanganate-of-potash solution. No attempt should be made to remove the dead bone until it has become separated from the living. In such minor cases as are the result of slight injuries or inflammations of the alveolus the dead bone may be very readily removed without a general anæsthetic with the ordinary dental instruments. The teeth need not be lost, even if a considerable portion of the process be removed, as they may be banded together and held until such time as repair has taken place. In those more extensive cases where a considerable portion of the jaw is involved, it is well to wait until any support that the dead bone may have afforded is no longer needed before an operation for its removal is undertaken. After the bone is removed the cavity is washed out and packed with boric gauze. A. E. Webster (*Dominion Dental Jour.*, Nov., 1900).

MISPLACED AND UNDESCENDED TESTICLE, OPERATIONS FOR.

In operating for misplaced and undescended testicle, the following details are of value:—

1. An incision is made so as to expose

the spermatic cord and its junction with the testicle.

2. The cord and testicle are then drawn out and all attachments fixing the latter in its abnormal position are carefully divided.

3. The corresponding side of the scrotum is opened up with the finger and the testicle placed in it.

4. Two catgut or silk stitches are passed through those portions of the gubernaculum still attached to the testicle where they have been divided, and these same stitches are also passed through the base of the scrotum so as to fix the testicle in its proper position.

5. The opening through which the testicle had passed into the perineum is carefully stitched up by means of subcutaneous catgut sutures.

In this way the testicle is permanently fixed in the scrotum.

The operation for replacing a misplaced testicle is to be urged and carried out in early childhood. Thomas Annandale (*Brit. Med. Jour.*, Dec. 1, 1900).

NAUSEA AND VOMITING DURING ANÆSTHESIA, PREVENTION OF.

In order to prevent the nausea and vomiting occurring during anæsthesia, chloretone has been tried before anæsthetizing patients. It was given in doses of 10 grains to women and boys under 16 years of age, and of 15 grains to men, half an hour before the anæsthetic was to be started. If the patient did not object to it, it was given dry on the tongue, the administration being followed with an ounce or two of warm water. It may also be given in capsules, but the 3-grain sugar-coated tablets now on the market are not so desirable in this connection. When the time for administering the anæsthetic comes

around, the patient who has had chloretone is calm; nervousness is quieted, and he is in an ideal condition.

It takes from 7 to 12 minutes to anesthetize completely with chloroform, and up to 15 and 18 with ether. Patients who have had chloretone require less of the anæsthetic, and are not so apt to come out of the anæsthetic suddenly during the operation, if the administration of the anæsthetic is lessened temporarily.

Out of 30 cases, large abdominal operations, but 3, or only 10 per cent., of the patients were nauseated and vomited, and in 2 of the 3 cases the chloretone was not given until just before the administration of the anæsthetic. L. J. Hirschman (*N. Y. Med. Jour.*, Dec. 15, 1900).

OXALURIA.

Oxalate of calcium may be present in the urine in solution, and conclusions based merely on the presence or absence of crystals are untrustworthy. Quantitative tests are required, and these demand the utmost care. An ordinary mixed diet always contains oxalic acid or its salts, and some of these may be absorbed and reappear unchanged in the urine. The amount excreted fluctuates with the amount ingested, and varies from a few milligrammes to two or three centigrammes, being usually below ten milligrammes. In health no oxalic acid is formed in the body by metabolism. In certain disturbances of health, characterized by the absence of free hydrochloric acid in the gastric juice, oxalic acid is formed in the organism. This formation is connected with fermentative activity in the alimentary canal. The prolonged ingestion by dogs of large quantities of glucose leads to a state of oxaluria, which is associated with a mucous gastritis.

Finally, the symptoms attributed to an oxalic-acid diathesis are not due to the presence in the system of soluble oxalates, but probably depend on other products of fermentation and putrefaction. Helen Baldwin (*Jour. of Exper. Med.*, No. 1, 1900).

PHTHISICAL REMEDIES.

The four phthisical remedies which have proved most valuable in personal experience are rest, nutritious food, strychnine, and counter-irritation over the vagi. The latter is accomplished by the hypodermic injection of silver nitrate over the vagi in the region of the neck. To produce the desired amount of counter-irritation it has been found that 5 minims of a 2 1/2-per-cent. solution of silver nitrate is adequate in most cases, and for its introduction the following plan has been found feasible: One is to inject 5 minims of a 2 1/2-per-cent. solution of cocaine hydrochlorate; detach the syringe from the needle, and let the latter remain in the puncture. He is then to wash out the syringe with water, draw the silver solution into the syringe, attach the latter to the needle and throw in 5 minims of a 2 1/2-per-cent. solution of silver nitrate. The point selected for the introduction of the needle is immediately over or slightly behind the pulsating carotid artery in the neck, midway between the angle of the lower jaw and the clavicle. To avoid puncturing the underlying blood-vessels the skin is to be lifted between the thumb and forefinger of the left hand, and the needle is just to puncture through the cutaneous covering. The injections are to be repeated once a week or every ten days, or oftener, if necessary. Both sides of the neck may be injected, but it is best to begin, and to give most of the injec-

tions, on the side of the neck below which the affected lung is located. In about two hundred cases of pulmonary phthisis the silver-nitrate injection has been given with greater and more lasting benefit than derived from any other single agent. T. J. Mays (Penna. Med. Jour., Dec., 1900).

PRESCRIPTIONS FOR CHILDREN, SIMPLE METHOD FOR WRITING.

The method of calculating a dose for a child is, according to Cowling's rule: age at next birthday, divided by twenty-four. A simple method for writing the prescription, in order to avoid much calculation, is to make it contain exactly twenty-four doses, whence it necessarily follows that the entire amount of any drug in the prescription will be the adult dose multiplied by the age at next birthday.

For example, one may take three drugs, *x*, *y*, and *z*, of which the adult dose of *x* is 5 minims, of *y* 8 minims, and of *z* 10 minims. The prescription is written as follows:—

R *x*.....
y.....
z.....
 Aq.....q. s. ad, etc.

Now, if one makes the entire quantity 3 ounces and the amount taken at each dose 1 drachm, the prescription will contain twenty-four doses, thus:—

R *x*.....
y.....
z.....
 Aq.....q. s. ad 3 ounces.

M. Sig.: One drachm t. i. d.

If the child at its next birthday is one year old, the prescription is completed by simply putting the adult dose after each item, thus:—

For baby F.—, aged 1 year.

R *x*..... 5 minims.
y..... 8 minims.
z..... 10 minims.
 Aq.....q. s. ad 3 ounces.

M. Sig.: One drachm.

If three years old, one must simply put down three times the adult dose.

If ten years old, ten times the adult dose, etc.

The advantage of this method will, perhaps, be more fully appreciated by giving drugs with fractional doses.

If the child is four years old, one puts down four times the adult dose after each item, thus:—

R Strych. sulph...gr. $\frac{1}{60}$ (gr. $\frac{1}{15}$).
 Digitalin....gr. $\frac{1}{100}$ (gr. $\frac{1}{25}$).

M. et fiat pil. No. 24.

Sig.: One pill t. i. d.

There is absolutely no calculation necessary, as long as one makes his prescription contain twenty-four doses. All that is needed is to know the adult dose of each item, and multiply it by the age of the child, and that will give the entire amount to be placed after each item. If one does not wish to give as many as twenty-four pills, twelve may be given, and each amount divided by two.

The method may, of course, be used in the metric system.

As this method depends upon Cowling's rule, it is applicable only where Cowling's rule is applicable. In giving opiates, etc., where less than $\frac{1}{24}$ of adult dose is given, one cannot, of course, make use of this method. Max Huhner (Med. Record, Nov. 24, 1900).

SCARLET FEVER.

Treatment.—Rest in bed and fluid or semilfluid diet should be insisted on for

three weeks. Frequent sponging with weak solutions of carbolic acid or bicarbonate of sodium may be utilized for itching, painful tension, or other irritable conditions of the skin. The temperature is to be treated according to its effects on the patient. In cases where the distress is out of proportion to the rise of temperature, the relief afforded for the extreme restlessness, insomnia, or even delirium, by means of baths, can be very much augmented by the use of sedative drugs, a phenobromide combination being most effective. With temperatures unusually high or unusually persistent, baths and packs are of value. A graduated bath may be given, beginning at the temperature of the patient and reducing the temperature, in from 10 to 15 minutes, 20°, 30°, or even 40° F. If the temperature of the bath must be very low.—say, 65° F., or even that of an ice-pack.—heat applied during the bath or pack to the arms and legs by wrapping them with hot blankets is an excellent aid in avoiding depression. Too much stress cannot be laid on the necessity for careful and skillful attention to the ears. Equally important is attention to every detail affecting the best interests of the kidneys. W. L. Somerset (N. Y. Med. Jour., Dec. 8, 1900).

SUTURE MATERIAL.

The best suture material, so far as personal experience is concerned, is catgut.

The catgut prepared by surgical-instrument dealers, when sterilized and sealed in glass tubes, may be regarded as perfectly safe, both the formaldehyde and the chronicized; but it is expensive. On the score of economy, therefore, the method of preparation will be

SUTURE MATERIAL.

of interest. Catgut (formerly, perhaps, taken from the intestine of the cat) is now made by cutting the intestines of goats or sheep into small strips, macerating in hot water until all the muscular and serous coats separate from the mucous lining, and then cutting into strands, which are twisted and dried. The next step in the preparation of the gut, as practiced by those who put it up ready for use, sterilized, in glass tubes or bottles, is to sand-paper the various strands until they are polished to a high degree. This seriously impairs the strength of the strand as to often make it wholly unreliable. Therefore, it is wiser to buy the raw catgut as prepared for jewelers' use. This gut comes in various sizes in pieces about one meter in length, somewhat rough, but very strong and reliable.

In ordering from the ordinary dealers in surgical instruments great trouble has been experienced in securing the proper sizes, because heretofore each dealer has had his own system of measurements or grading sizes. All this may be obviated by ordering sizes gauged by the American Standard Wire Gauge, which may be found in every hardware store and mechanic's shop. For practical purposes catgut should be ordered as Nos. 18, 20, 24, and 26.

This raw catgut is to be put in a 4-per-cent. aqueous solution of formalin; by which is not meant "formaldehyde," but the ordinary commercial "formalin" (itself suspension of formaldehyde-gas in water). It is allowed to soak for forty-eight hours in this 4-per-cent. formalin solution, at the end of which time it is thoroughly sterilized, as well as hardened.

At the end of forty-eight hours it must be removed from the solution and the excess of formalin washed away, as

an excess makes the gut too brittle. It is best, perhaps, to put it in a basin under the water-tap, connect a rubber tube with the tap, and turn on just enough water that a gentle stream is kept running through the basin all night,—say, twelve to fifteen hours.

When washed it must be arranged in large loops and rolled firmly in gauze or a towel, as otherwise it will curl up in boiling so as to be valueless. Large balls may be wrapped in the gauze or towel and when ready put in a pot of water and boiled from twenty minutes to half an hour. It is then removed from the boiler, but left wrapped so that it may not become contaminated, and is placed in a sink or elsewhere to drain for two hours. It is then dropped into a jar of commercial alcohol, which removes the excess of water. It may be left for a day, for weeks, or for a year, as is convenient.

For permanent storage the gut, assorted by sizes (handled only with sterilized dressing forceps or fingers thoroughly clean), should be put in small jars containing 95-per-cent. alcohol, in which it may remain for years. A better solution consists of 1 ounce of glycerin, boiled to render sterile, mixed with 1 pint of alcohol. Only a small quantity of gut should be placed in these bottles. So it is well to have a large jar of each size from which small bunches may be taken from time to time as required for early use.

After the catgut has been removed from the container in which it is carried in the satchel it should not be put back with the untouched portion until after it has been boiled again. It must be wrapped in gauze and boiled at some convenient time, after which it may be put back in the solution. It will stand this boiling three or four times, but

after that it becomes tender, and has to be thrown away.

Catgut as thus prepared will remain unabsorbed from six to twelve days, according to size. If it is desirable to have a suture remain a longer time than this, chromicized catgut must be used.

To make chromicized catgut, one must add 15 grains of bichromate of potassium to the pint of formalin solution in the first step of preparation already described. The bichromate must be first dissolved in a little cold water and then added to the formalin solution. Catgut thus treated will remain in the tissues for about four weeks and then be rapidly absorbed. If this gut be employed for a surface suture it will have to be removed the same as a silk or silk-worm-gut stitch. It is generally used as a buried suture in hernial operations, where wire and silk were formerly employed.

If it were desirable to have the gut last longer than this, the amount of bichromate of potash could be doubled. This would give a suture which would remain for months. R. T. Morris (*Amer. Jour. of Surg. and Gynæc.*, Nov., 1900).

SUTURE, REMOVABLE BURIED, FOR ABDOMINAL INCISION.

The following suture, acting as a buried stitch, can, when its purpose has been served, be completely withdrawn:

At from an inch to an inch and a half from each extremity of the wound to be united a small piece of skin is snipped out by means of a forceps and curved scissors. A large half-curved surgeon's needle armed with a double silk thread which carries a strong silver wire is now entered through one of the openings in the skin and is made to penetrate the several layers of the ab-

dominal wall at about a 45-degree angle, its point finally emerging beneath the peritoneum just short of the termination of the incision. The needle is drawn through and sufficient of its silk thread drawn after it to free it for subsequent manipulations. It is then used to whip a wide over-hand stitch along the entire length of the severed peritoneum, and is made to emerge beyond the opposite extremity of the wound through the other opening in the skin in the same manner as it entered. Its silk thread, which must be strong, is then drawn upon until the attached silver wire fills the entire space formerly occupied by the thread. By a repetition of this procedure, though not penetrating so deeply, the several layers to be united are separately traversed, even the under surfaces of the skin being thus drawn together if desired. The skin-margins are usually approximated, however, with strips of sterilized adhesive plaster. The wires are now drawn taut, and as a result all portions of the wound are firmly approximated. The ends of the wires are then threaded upon two broad, flat buttons, one at each end, and twisted over them to prevent slipping, or each may be retained separately by means of a split shot over the button. When it is desired to remove the sutures a scissors is passed beneath one button and they are cut; then by a firm traction upon the other button they are readily drawn out. Or should one desire to remove any one stitch before the others, separate shot should be employed to prevent the individual wires from slipping through the button, the special wire to be removed being cut between the button and the shot before traction from the other end is made. In this case, to prevent confusion, different sizes of wire or of shot

must be used for each suture. Evan O'Neill Kane (*Penna. Med. Jour.*, Dec., 1900).

TUBERCULOSIS OF THE IRIS.

Diagnosis. — Tuberculous growths in the iris may be confounded with gumma, sarcoma, and lepra. They may be distinguished from gummata by their color, their predilection for involving the inferior half of the iris, and by the presence of glandular enlargements and the usual signs of pulmonary tuberculosis. A tuberculous nodule may in its early stages be confounded with sarcoma, but the latter is almost certain to be solitary, is rarely accompanied by any iritis, seldom occurs before middle life, and is usually more vascular than a tuberculous nodule. In general, it may be stated that the lesion is probably tuberculous when the growths are multiple, non-vascular, and gray, and are accompanied by glandular enlargements. Iritis in a child is generally tuberculous and always serious. C. S. Bull (*Med. Record*, Dec. 8, 1900).

TUBERCULOSIS OF THE TESTICLE: INDICATIONS FOR EPIDIDY- MECTOMY.

Epididymectomy should be the operation of election in every case of tuberculosis of the epididymis, single or double, except under the following conditions:

1. Where there are extensive tubercular lesions elsewhere, which will shortly terminate the patient's life.
2. Where the disease has extended to and destroyed the greater part or all of the testis proper. Here castration should be done.
3. Where the scrotum is riddled with discharging sinuses. The indication is usually here also for castration. In every other case a resection, typical or

atypical, should be done. J. B. Murphy (Jour. Amer. Med. Assoc., Dec. 1, 1901).

TUBERCULOUS PERITONITIS, OPERATIVE TREATMENT OF.

To summarize briefly: 1. One may reasonably expect cures (one year or more after operation) in from 30 to 40 per cent. of all cases. Fatal cases usually die within a few months after operation. 2. Family history does not appear to be important etiologically. Previous inflammatory affections of the abdominal viscera may have etiological

significance. 3. Operation usually affords at least temporary improvement, either locally or generally, even in cases that later prove fatal. The use of drainage should be avoided, when possible. 4. Inferences as to the remote results of operation should be drawn very guardedly, if at all, from the immediate results, though in cases which do not immediately receive from an operation either local or general benefit the prognosis is very unfavorable. J. T. Bottomley (Boston Med. and Surg. Jour., Dec. 13, 1900).

New Books Received.

The editor begs to acknowledge, with thanks, the receipt of the following books:—

TRANSACTIONS OF THE CLINICAL SOCIETY OF LONDON. Volume the Thirty-third. Longmans, Green & Co., London, 1900.

THE TALE OF A FIELD HOSPITAL. By Sir Frederick Treves. Cassell & Company, London, and 7 and 9 W. Eighteenth Street, New York, 1900.

ANATOMIE GÉNÉRALE APPLIQUÉE A LA PHYSIOLOGIE ET A LA MÉDECINE. Par Xav. Bichat. Paris: G. Steinheil, 2, Rue Casimir-Delavigne, 2, 1900.

STUDENTS' EDITION, A PRACTICAL TREATISE OF MATERIA MEDICA AND THERAPEUTICS, with special reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College, of Philadelphia; Physician to the Medico-Chirurgical Hospital; Member of the American Medical Association, of the Pennsylvania and Minnesota State Medical Societies, the American Academy of Medicine, the British Medical Association; Fellow of the Medical Society of London, etc. Fifth Edition. Thoroughly Revised. 6¼ x 9½ inches. Pages vii-770. Extra Cloth, \$4.00, net; Sheep, \$4.75, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following monographs:—

Diseases of the Pancreas. By W. Hale White, M.D., 1900.—Excision of the Eyeball and some Alternative Operations. By Frank Buller, M.D., Montreal, 1900.—Varieties of Colon Bacilli Isolated from Man. By W. W. Ford, M.D., D.P.H., Montreal, 1900.—Specific Urethritis. By W. A. Hackett, M.D., Detroit, Mich., 1900.—The Good Nurse. By James H. McBride, M.D., Los Angeles, Cal., 1900.—An Atypical Case of Retinitis Pigmentosa. By W. Gordon W. Ryers, M.D., Montreal, 1900.—The Bacteriology of Healthy Organs. By W. W. Ford, M.D., Montreal, 1900.—Notes of Three Hundred Agglutination Tests with B. Coli Communis. By John McCrae, M.D., Montreal, 1900.—Chills in Typhoid Fever. By W. W. Ford, M.D., Montreal, 1900.—The Address in Gynecology. By William Gardner, M.D., Montreal, 1900.—The Pathology, Diagnosis, and Treatment of Perforated Gastric Ulcer. By G. E. Armstrong, M.D., Montreal, 1900.

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Cyclopædia of the Year's literature.

INFLUENZA.

Diagnosis.—An editorial¹ says that the occurrence of various forms of catarrhal fever, which are often called grip, or influenza, by physicians and laymen, is something altogether different. Sporadic cases of coryza and bronchial

catarrh should never be mistaken for influenza, although the symptoms of influenza may be initiated in an exquisite manner. The celebrated Bonn professor's advice is that a complaint present-

¹ Med. Record, Jan. 19, 1901.

ing catarrhal features should not be diagnosed as true influenza until the characteristic microbe has been found.

The most distinctive mark of typical severe influenza is its remarkably sudden onset, the only disease which resembles it in this respect being Asiatic cholera.

Some of the symptoms are: Headache of a particularly-racking type, frontal or orbital, often the precursor of delirium; acute aches and pains in the back, not unlike those which are the forerunners of variola. The condition of the tongue is peculiar to the disease. According to Goodhart, it is generally tremulous, swollen, soft, and coated with a thick, creamy, dirty fur, accompanied usually by a particularly-offensive smell of the breath. The sweat, also, has an odor peculiar to this disease alone. Sometimes the coryzal symptoms are severe to a degree, and sometimes a dry and hard cough is an accompaniment. The temperature varies very considerably, occasionally running to a high point, but often rising to no appreciable extent. Rigors and drenching sweats are a not uncommon feature in the course of the complaint. Goodhart rightly lays especial stress upon the value in diagnosis of an extensive diffusion over the bases of the lungs of characteristic sharp, sticky râles.

H. B. Sheffield² finds the diagnosis of influenza in children easy during an epidemic, but quite the reverse in its absence, "colds" and gastro-intestinal disorders being of such ordinary occurrence among children that influenza is generally not thought of when such symptoms present themselves; furthermore, the diagnosis is often obscured by the complication. So far as personal experience goes, it has always been possible to discriminate influenza from

similar acute affections when pains and time have been taken to do so, relying chiefly upon the following symptoms:—

1. The invariable presence of influenza bacilli of Pfeiffer in the expectoration.

2. The simultaneous development of respiratory, digestive, and, at times, nervous phenomena.

3. Early and pronounced prostration, incommensurate with the severity and duration of the attack.

In addition to these differential points one must bear in mind the characteristic signs of all the other diseases resembling influenza, such as pneumonia, meningitis, gastro-enteritis, typhoid fever, scarlatina, measles, continued hyperpyrexia, and rheumatism.

Etiology.—An editorial³ says the present epidemic of grip does not tend to support the opinions of those who have predicted that immunity to this disease would gradually be established, and that influenza itself would die a natural death for want of material upon which to feed. On the contrary, the fact has been notable from the very first appearance, about ten years ago, of this prevailing infection, that the grip has had a tendency to attack the same victim repeatedly, and that it has slowly and surely become an epidemic disease among us. This is certainly contrary to what one expects to see in an infectious disease, and to what is actually seen in most of the other so-called zymotic diseases. And yet that grip is an infectious disease, or the product of a microbe, there is no reason to doubt. That it is contagious—in the sense that, as in any microbial disease, the spores or the bacilli themselves can be passed

² N. Y. Med. Jour., June 30, 1900.

³ Phila. Med. Jour., Jan. 19, 1901.

from one person to another—is not to be doubted; and yet it is probably not so highly contagious as some observers contend.

Complications.—D. B. Lees⁴ says that in influenza rapid dilatation of the heart frequently occurs within a day or two after the onset of the disease, and it sometimes causes fatal syncope. It is certain that the dilatation caused by influenza may remain as a permanent dilatation, and may give rise to very serious symptoms. Thrombosis is also of frequent occurrence after influenza, probably due, in part at least, to the enfeeblement of the heart. Minor degrees of dilatation may cause merely a feeling of incapacity for exertion. Active exertion may do such a patient much harm, and any prolonged strain may be followed by an acute breakdown.

According to F. Forchheimer's⁵ observations, we are justified in assuming two forms of heart-dilatation in influenza: One presumably produced by the action of the toxin upon the nervous system of the heart and possibly upon the myocardium; the second form occurring in such conditions in which outflow of the blood is materially interfered with on account of mechanical conditions.

The first form, according to the excellent observations made by West, undoubtedly may end fatally, although this has not been the case in the writer's experience. The second form is one that lasts much longer than the first, but in children has a tendency to recovery.

Sequelæ. — Post-influenzal tracheal hamorrhage has been several times observed by James Donelan.⁶ In all the cases except one there was a more or less recent history of influenza, and of more than one attack. The tickling in

the lower part of the throat and a constant feeling of "something that must be got up" were complained of by all, together with the short, dry cough, which is all the more persistent, the more recent the influenza. There is no elevation of temperature unless influenza is still present; very often not even then. It is sometimes only attributable to the influence of alarm or of loss of blood if the hamorrhage has been severe, and is generally only temporary, and the chart presents none of the characteristics found in incipient phthisis. The bleeding usually comes on suddenly, and may be repeated at intervals of a few hours or days, or several months may elapse between one attack and the next; but, when this happens, the later attack has been preceded by a recurrence of influenza. As a rule, only small quantities of blood are coughed up,—two or three ounces in twenty-four hours; but it may attain the proportions of a bronchorrhagia. Emaciation may be present, either a result of the previous influenza or, if the hamoptysis has lasted for some months, it may be due to the anxiety of the patient lest he may have contracted the graver disease.

Examination of the chest shows no evidence of disease of the pulmonary parenchyma; but a few moist râles may be heard, or there may be more distinct traces of broncho-pneumonia if the influenza has been recent. There are, however, none of the classical signs usually associated with pulmonary tuberculosis.

When the repeated rise of the stetho-

⁴ N. Y. Med. Jour., Jan. 19, 1901.

⁵ Boston Med. and Surg. Jour., Aug. 9, 1900.

⁶ Jour. of Laryn., Rhin., and Otol., Jan., 1901.

scope supplies the negative evidence, the laryngoscope alone can yield the positive, and the abnormal appearance of the subglottic vascular region on deep inspiration will at once engage the attention, even if no bleeding be going on. The most favorable time for examination is when the attack is passing off and a little bleeding is still taking place. The blood may be observed trickling down the trachea for an inch or so, the trachea below looking either somewhat paler than usual or else quite normal and entirely different from that observed in patients in whom the hæmorrhage comes from the lungs, when it may be either coated with clot or have small patches of clot here and there all the way down to the bifurcation. In most of the cases the mucous membrane was paler than normal, the groups of dilated vessels in the subglottic region standing out in marked contrast. In one it was congested, probably owing to the continuance of the influenza, at the time of observation.

J. S. Bury⁷ directs attention to cases of influenza in which the nervous system seems to be specially selected for attack by the bacilli and their poisonous products. Such cases may be broadly separated into two groups: In the first group are placed nervous diseases which develop during or shortly after the febrile stage, and are sometimes the sole representatives of the effects of the influenzal poison; meningitis and hæmorrhagic encephalitis are the best examples of this group. In the second group are placed nervous diseases which usually occur after the attack has subsided; neurasthenia and multiple neuritis may be mentioned as good examples.

GROUP I. Of nervous symptoms belonging to the first group the most im-

portant are those which indicate a morbid condition of the brain. Two types of cases—namely: the comatose type and the delirious type—may be distinguished.

The Comatose Type.—In a well-marked example a patient, with or without the usual symptoms marking the onset of influenza,—namely, prostration, pyrexia, headache, and nasal catarrh,—gradually becomes drowsy and apathetic; he answers questions with difficulty, and in a few days becomes comatose. Recovery may occur, but a fatal termination is more common.

The Delirious Type.—In contrast to the drowsiness, somnolence, and unconsciousness which characterize what is called the comatose type, one may meet with cases in which restlessness, irritability, delirium, and even mania are the essential features.

In infants an attack of influenza may be represented solely by pyrexia and convulsions. Very rarely a change in the mental condition precedes the outbreak of influenza. There may be depression and drowsiness or an exaltation and fusion of ideas passing into active delirium.

The Spinal Cord and its Membranes.—As a rule, affections of the cord appear to develop at a varying time after the attack of influenza, but in rare cases spinal symptoms show themselves during the attack, and may constitute its salient features.

GROUP II. NERVOUS SEQUELÆ.—A greater variety of disorders of the nervous system may come after influenza than after any other disease. As regards the brain, one meets with neurasthenia, hysteria, epilepsy, outbreaks of delirium, and every variety of psychosis;

⁷ Brit. Med. Jour., Sept. 29, 1900.

with meningitis, encephalitis, cerebral hæmorrhage, embolism, and thrombosis of arteries, veins, or sinuses. As regards the cord, almost every variety of myelitis or of degeneration of its various tracts may occur. Foà has recorded a case of disseminated hæmorrhagic myelitis: a condition analogous to that of multiple hæmorrhagic encephalitis. Finally, as regards the nerves, one may have neuralgia or neuritis in the territory of nearly every cerebral or spinal nerve, as well as the different forms of multiple neuritis. Here the occurrence of retrobulbar neuritis should be specially mentioned.

The paralyses which are related to disorders of the bulbar nuclei or of their nerves illustrate one of the striking peculiarities of influenzal toxins, namely: the erratic way in which they seem to be distributed. Thus, while as in diphtheria, there may be paralysis of accommodation associated with paralysis of the palate, there is a greater variety in influenza than in diphtheria as regards the grouping of muscles affected with paralysis. Thus, one meets with isolated paralysis of the superior rectus or of the internal or external recti, with transitory dilatation of one pupil, with intermittent paralysis of accommodation, with paralysis of both thirds, or of both fourths, or of both sixths, or of both sevenths, or with paralysis of one side of the tongue. In these cases recovery is invariable.

W. H. Broadbent* refers to the speculations which have arisen in his own mind with regard to the way in which the nervous system is affected. It has seemed that some of these effects are due to the action of the toxin, as, for example, neuritis and neuralgia, or neurasthenia, which are common sequelæ of influenza, just as diphtheritic pa-

ralysis has been shown to be the result of the special toxin of this disease. Others appear to be directly due to the microbes, just as in the malignant form of malarial poisoning, in which the meningeal capillaries are choked by the malarial parasites. There are, however, cases in which the results seem to be attributable rather to antecedent instability of the nervous system than to anything specific in the action of the influenzal poison. He is disposed to explain in this way the cases of insanity which are not uncommon after influenza.

The comatose form of attack seems to be due to the direct action of the microbes.

Peter Eade[†] notes that influenza is primarily a local parasitic disease of the mouth, throat, bronchial tubes, etc., the special nervous symptoms being due to absorption of the toxin secreted by its special germ: Pfeiffer's bacillus. This toxin exerts a selective affinity for different parts of the nervous centres, with a strong tendency to largely affect the medulla oblongata. In the spinal cord the sensory appear to be more affected than the motor portions, shown by the numerous special painful affections seen in cases of the disease. The so-called incubation period of hours, or two or three days, is that in which the first portion of this toxin is formed, and this often takes place before any sensation of illness is felt. The effect upon the nervous tissue unquestionably varies from mere poisonous irritation to actual inflammation, and the seriousness of the effects will vary with this. One of the best proofs of the special involvement of the bulb and the eighth nerve is the

* Brit. Med. Jour., Sept. 29, 1900.
 † *Ibid*

marked influence exerted upon the heart, as shown by the marked and often fatal asthenia observed in acute cases; also by the tachycardia and bradycardia seen in connection with the influenzal disease.

St. Clair Thomson¹⁰ dwells on the occurrence of paralysis of the vocal cords. Abductor laryngeal paralysis frequently presents great difficulty as regarded determining the etiology; but a number of cases have been observed in which a paralysis of one cord, lasting sometimes for years, was undoubtedly due to a post-influenzal neuritis.

Administration of Anæsthetics.—William Calwell¹¹ draws attention to the importance of obtaining a history of recent influenza before the administration of anæsthetics, especially of chloroform; there have been large numbers of deaths from chloroform administration, and this is especially the case during influenzal epidemics. Very suspicious cases have occurred, which were clearly explained by the depressed condition of the nervous system and of the heart.

Treatment.—An editorial¹² remarks that, with reference to treatment, there seems to be nothing new and nothing very effective. There is no specific for grip, and, until there is a protective or a curative serum, there probably will be no specific.

According to an editorial,¹³ no specific for the malady is known, and the majority of physicians the world over appear to have come to the conclusion that each individual case should be treated on its merits, and that therapeutic remedies for influenza, *per se*, have but slight curative effects.

The German committee, which was formed after the epidemic of 1892, after obtaining the opinions of six thousand physicians in that country, stated in a

general way that the use of drugs has been overdone in the treatment of influenza, and that a doctor's intelligent advice is of infinitely more benefit than quantities of medicine. Rest in bed, the shunning of drastic agents, and, above all, curbing the desire to leave the sick-room until the seeds of the disease are entirely eliminated from the system are the only rational procedures. One great precaution to be observed in the treatment of influenza—as, indeed, in the treatment of all contagious diseases—is the thorough ventilation of the sick-room and of houses in which cases occur.

W. H. Thomson¹⁴ devised for his own case while suffering from the grip a prescription containing in each dose $\frac{1}{4}$ grain of solid extract of aconite, 1 grain of Dover's powder, 4 grains of phenacetin, and 3 grains of quinine, made into two pills; three doses, or six pills, to be taken on the first day of the attack, and continued daily as long as a febrile temperature lasted. As soon as the temperature declines, whether on the second day or subsequently, the dose is reduced by one pill a day, till three, or one-half the first daily dose, are taken, and this is continued until all catarrhal symptoms have subsided. Personal experience with this prescription was so uniformly favorable that it was often recommended in consultation. Some patients who are very susceptible to aconite find the dose in this formula causes numbness and tingling, in which event its proportion may be reduced.

When coryza and nasal catarrh are leading symptoms, a pill of $\frac{1}{4}$ grain of extract of belladonna with 1 or 2 grains

¹⁰ Brit. Med. Jour., Sept. 29, 1900.

¹¹ *Ibid.*

¹² Phila. Med. Jour., Jan. 19, 1901.

¹³ Med. Record, Jan. 19, 1901.

¹⁴ N. Y. Med. Jour., Jan. 26, 1901.

of camphor seems to afford relief. To this should be added a flushing of the throat by a fountain or a Davidson syringe with a quart of hot water in which 2 teaspoonfuls of potassium chlorate and 5 drops of oil of peppermint are dissolved. A very troublesome complication occasionally occurs by the supra-orbital sinuses becoming involved, with attacks of excruciating pain and often photophobia. The specific for these pains is the fluid extract of ergot, in 1-drachm doses, repeated every three hours if necessary. The addition of 1 drachm of elixir of cinchona makes it better borne by the stomach.

One sequel of influenza is a markedly-paroxysmal, dry cough, which has nothing to do with bronchitis, but is evidently of a nervous character, and which may persist for weeks after other symptoms have subsided. It generally yields to doses of 20 grains of the ammonium bromide with 10 of antipyrin.

In the bronchitis, emulsion of linseed-oil—to which is added to each dose of the emulsion $\frac{1}{12}$ grain of morphine and 8 grains of chloral—is of greatest value.

Adjuvants which should not be neglected are, first, thorough dry cupping of the chest, both anteriorly and posteriorly. One should not be afraid of repeating this application too often, but the weak cupping by glasses with rubber bulbs is wholly useless. Following the cupping, the stimulant action of large cloths applied to the surface of the chest, wet with the infusion of capsicum, made with a drachm to the pint of boiling water, is quite preferable to mustard, as it does not occasion vesication or an intractable sore. It is well to keep up such cutaneous stimulation for a long time, because the patient who once had a bronchitis develop basal râles is not likely to cease coughing for weeks.

A good prescription for this purpose is a liniment of 1 part each of aqua ammoniac, oleum terebinthinæ, and tinctura capsici, with 3 parts of linimentum saponis. For the tedious debility which follows influenza reliance is placed mainly on the fluid extract of coca with nux vomica. Inhalation of oxygen is also often serviceable if administered with a funnel over the nose and mouth, as in administering ether.

The patient, as soon as the diagnosis of influenza is made, should at once go to bed and stay there till further orders.

In speaking of the treatment of influenza in children A. Jacobi¹⁵ says the most perfect isolation is imperative, wherever feasible. Expectorated mucus and the products of sneezing should, if possible, be caught and destroyed or disinfected; tools, toys, towels, handkerchiefs, and linen should be washed and disinfected as in other contagious maladies. Both the sick and the well children should use disinfectant mouth-washes, for which purpose water slightly acidulated with hydrochloric acid answers best. The drinking-water should also be acidulated with the same acid. The nose should also be irrigated as a matter of course, both in the well and in the sick. There is no specific against influenza. As the bowels appear to be the principal point of attack in young children, a purgative dose of calomel should be given at the start. The little patient should be kept in bed; the temperature of the room should be 70° F., or a little higher in the beginning; the diet, especially at first, should be scanty and fluid; milk, cereals, water, lemonade, and broths. Later in the disease eggs may be permitted, and in a very few cases alcohol may be indicated; in

¹⁵ Med. News, Dec. 15, 1900.

influenza it is rather a slow convalescence than the disease itself that requires alcohol.

Cold water and opium are distinctly contra-indicated in influenza. A warm bath is often beneficial where there is much muscular pain and restlessness. In cases of severe vomiting rectal alimentation must be resorted to. Peptonized milk, eggs, and broths are absorbed in part; starch is converted into dextrin in the colon and makes the enema more nutritious, but even water alone adds to the circulating fluid. Ice, either internally or externally, may sometimes relieve the vomiting, but the best remedy is morphine. It is not necessary to put the morphine into the stomach. Absorption takes place more readily from the mouth or throat; to a child two to four years old administer a tablet of $\frac{1}{60}$ grain, or put $\frac{1}{2}$ to 1 drop of Magendie's solution on the tongue, undiluted.

For the high temperature, acetanilid should never be used under any circumstances. The effects of antipyrin are generally good, though it has many undesirable by-effects. Phenacetin is much milder in its action; to infants and children it should be given in doses of $\frac{1}{4}$ to $\frac{1}{2}$ grain. Salophen is preferred by some to salicylic acid and sodium salicylate, especially in the nervous form of influenza.

Another important element that demands treatment in influenza is the exhaustion, because there is hardly a disease which has as great a tendency to cause exhaustion and numerous other nervous symptoms, from languor to heart-failure, as influenza. If there is the slightest indication of such a danger, a heart-stimulant should always be added to any antipyretic one may give. Alcoholic preparations are not advis-

able, but caffeine preparations are indicated; the caffeine-sodium salicylate and caffeine-sodium benzoate are the best. The value of strychnine is too well known to need extended mention. Whether and to what extent to administer stimulants will depend upon the general condition of the patient, his former health, and his resisting power. In most cases sparteine sulphate— $\frac{5}{6}$ grain *pro die* to a child two years old—will have a favorable effect. The caffeine salts may be given in doses of 3 to 10 grains per day; should the caffeine appear to excite the brain, it should be replaced by camphor ($1\frac{1}{2}$ to 6 grains during the day). Where strong stimulation is required, the above drugs should be given in larger doses or should be administered subcutaneously. For the hypodermic administration of camphor, it should be dissolved in four parts of sterilized expressed oil of almond. Another excellent stimulant, useful in the gravest cases attended with heart-failure and collapse, is Siberian musk. The dose for a child of two years of the 10-per-cent. tincture should be 5 to 10 minims every half-hour, until six or twelve doses have been taken. Musk, together with large, hot enemata, has helped to carry through many a hopeless case.

TYPHOID FEVER.

Diagnosis. — C. F. Hoover¹⁵ concludes that the diseases which we have to differentiate from typhoid are trichinosis, malaria, septic endocarditis, septicopyemia, meningitis, and miliary tuberculosis. The one disease that has to be differentiated in every case of severe typhoid, and far more often than any other disease, is miliary tuberculosis.

¹⁵ Cleveland Jour. of Med., Jan., 1901.

The temperature of miliary tuberculosis may be identical with that of the continued fever of typhoid. The pulse-rate is of no value for differentiation in any given case, although, on the whole, the pulse in typhoid may be slower than the pulse in miliary tuberculosis. The typhoid pulse has one characteristic which is very constant and rarely occurs in miliary tuberculosis, namely: dirotism. Dirotism may, however, occur in miliary tuberculosis. The pulmonary signs have nothing characteristic in either case. In either instance one may have simply the evidences of a diffuse bronchitis with a diminution of the elasticity of the lung. There may be a lobar consolidation or evidences of broncho-pneumonia. The rapid irregular breathing and cyanosis may occur in typhoid as well as in miliary tuberculosis. One of the most constant signs in typhoid is a diminution of the number of white blood-corpuscles. Typhoid, not complicated with sepsis, invariably gives a hypoleucocytosis. The number of leucocytes in the second and third weeks of typhoid rarely go above 5000 to a cubic millimetre, and may be as low as 1400. Personal experience with the Widal reaction has not been accurate nor large enough in the past two years to form an exact judgment of the value of the sign, since it has been modified by the dilution of the blood-serum. But during the first two years of the Widal reaction good reaction was found in miliary tuberculosis, malaria, and cases of sepsis which at autopsy gave pure cultures of streptococcus from the blood, liver, spleen, and brain.

The most constant signs of typhoid fever are the continued fever, flushed face, dirotic pulse, large spleen, ileo-cæcal tenderness, hypoleucocytosis, and Widal reaction.

M. H. Richardson¹⁷ remarks that typhoid fever should be borne in mind in the consideration of acute abdominal emergencies which demand operation, for under a mistaken diagnosis an atypical typhoid may be operated upon as an appendicitis. Cases which begin with malaise and a high temperature, and which develop pain and tenderness secondarily, should be scanned with the greatest care. Recently four cases have been personally seen in three of which suspicions were first aroused by an early temperature of 103° to 105°. So high a temperature in suspected appendicitis is sufficient always to excite a doubt, for even the severe cases rarely show so high a fever. When constitutional signs are the most important, and local the least, abdominal cases demand the most careful investigation and the most conservative treatment. Of the four cases, one proved to be an acute obstruction from a congenital band; a chronic and incomplete obstruction so aggravated in the early days of typhoid by the distension of the small intestine as to become acute and complete. The second case, marked by high temperature and abdominal tenderness, proved to be a simple febricula dependent upon an injury in the foot-ball field in an overstrained and sensitive boy. The third, beginning with malaise and high temperature, presented, on the third or fourth day, a sudden, excruciating, abdominal pain, starting in the epigastrium and becoming localized in the right iliac fossa, but without local physical signs. It proved to be a typhoid of the severest type, and is now in its third week. The fourth patient, a boy of eleven, had been prepared for operation for a second attack of acute appendi-

¹⁷ Boston Med. and Surg. Jour., Jan. 3, 1901.

itis. The symptoms were headache, malaise, very high temperature, with later development of general abdominal tenderness without pain. The attending physician and the surgeon had considered the possibility of typhoid, but were not convinced that appendicitis was not present. Operation was advised against on the ground that it was not appendicitis, and a consultant agreed with the others that the disease was probably appendicitis, but of a type which did not at that time demand operation. The disease proved to be a typical typhoid of unusually severe type. The temperature has been a sustained high one. There have been several hæmorrhages, and at present the child has pneumonia.

The dangers of a surgical operation performed in the course of typhoid fever are great, as has been shown by the excessive mortality in the surgical emergency occurring during this disease. Perforation of the typhoidal ulcer is not now referred to, but to such complications as gall-bladder and other indirect infections; to emergencies not in the least dependent upon the disease, such as strangulated hernias and other external and accidental complications.

C. J. Aldrich¹⁸ feels that we are now in a position to make, with some degree of assurance, the following statements in reference to the relation of appendicitis and typhoid fever:—

1. Appendicitis may occur as an accidental complication of typhoid fever, and as such bears no other relation to the typhoidal infection.

2. Appendicitis may occur during the course of typhoid fever and be caused by conditions engendered by both local and general infection by the bacillus of Eberth.

3. Not a few of us meet with patients

who are suddenly taken ill with symptoms unmistakably appendicular in character, but which gradually subside and are merged into a typical typhoid, which then runs its usual course.

While the occurrence of an appendicitis in the course of typhoid fever may be accidental or causal, yet it is the third condition mentioned which is most puzzling to the physician, and demands a great deal of care and a high order of skill to prevent him from falling into the lamentable error of advising an operation upon an appendix which is unfortunately situated near, and irritated by, specific lesions in and about the head of the colon.

A. A. Eshner¹⁹ says that, in any community provided with a water-supply constantly exposed to the danger of contamination, cases of typhoid will always occur, and while, perhaps, no other disease is as common or as well known, the clinician must ever be on the alert lest he overlook mild or anomalous cases or mistake for typhoid other diseases that simulate it. The possibility of confusion is not diminished by the fact that typhoid fever is exceptionally unattended with elevation of temperature nor that the disease is at times unassociated with intestinal lesions. The liability to error has, however, been much reduced in recent years through the employment of the Gruber-Widal serum-test, which, although it may be considered the most trustworthy among the diagnostic phenomena of typhoid fever, on the one hand, cannot be relied upon at an early stage of the disease, and occasionally fails to yield a positive reaction in genuine cases, while, on the other hand, a positive reaction

¹⁸ Cleveland Med. Gaz., Jan., 1901.

¹⁹ Phila. Med. Jour., Dec. 29, 1900.

may be due to an earlier attack of typhoid fever unnoticed or forgotten. Even in the absence of the blood-serum reaction it seems yet permissible, though obviously not entirely safe, in temperate climates, to consider as typhoid any continued fever not explicable upon other grounds.

A considerable number of cases of typhoid fever without intestinal lesions have been reported, and such a diagnosis seems entirely legitimate. The recognition, as well after death as during life, is possible only by bacteriological methods, and is to be based upon the presence of typhoid bacilli in the intestinal discharges or contents or in the blood to the Gruber-Widal test. When it is reflected that infection with other micro-organisms is not confined to a single viscus, it should not occasion surprise that infection with typhoid bacilli should not be confined to the intestine, and it may safely be concluded that no organ or tissue exhibits a specific predisposition to infection with any one micro-organism.

J. E. Witham²⁰ considers that no other disease has such a multiplicity of symptoms, and yet there is no one symptom which may not be absent or which may not be found in other diseases. The diagnosis must be rational. It must be made from an association of symptoms.

In recent years serum-diagnosis, or Widal's reaction, has appeared to aid in diagnosing typhoid fever and other infectious diseases. When Widal's reaction is obtained it is absolutely confirmatory that the subject now has typhoid fever, or has had it at some previous time. The reaction usually may be obtained seven to ten days after the inception of the disease. It may not be obtained until the third or fourth week.

In 2 to 3 per cent. of cases undoubtedly typhoid the reaction is absent throughout the disease. It fails to give an early diagnosis, and may not confirm one in time to be of practical value. In some cases it fails altogether. Widal's reaction usually disappears within a year after recovery of the patient. It may persist many years. A person recovers from typhoid fever and again becomes ill. The serum-test is applied and Widal's reaction is present, and a diagnosis of typhoid fever is made. The reaction has persisted from the previous sickness, and the diagnosis is wrong.

J. L. Morse²¹ states that the serum-reaction occurs in infantile, as in adult, typhoid. The agglutinating power may or may not be present in the blood of infants born of women with typhoid. If present, it is transmitted from the mother to the child through the placenta. It is possible, however, that it may be formed in the child through the toxins transmitted through the placenta. Whether or not it is transmitted seems to depend on the strength of the agglutinating power in the maternal blood and the length of time during which the placenta is exposed to it. It may be transmitted to the nursing through the milk. It may appear in the infant's blood in less than twenty-four hours. It lasts but a few days after the cessation of nursing. It is always weaker in the milk than in the maternal blood, and always weaker in the infant's blood than in the milk.

There are certain peculiarities in the occurrence of typhoid rash in children which Arthur Maude²² has found well illustrated in several cases. The first

²⁰ Cincinnati Lancet Clinic, Nov. 17, 1900.

²¹ Archives of Pediatrics, Dec., 1900.

²² Lancet, Dec. 8, 1900.

appearance of rash in children is often earlier than in adults; it occurs frequently by the fourth day. Again, crops of spots may present themselves for a week after a normal temperature has been established. Rash is uncertain in childhood; it is either very pronounced or very slight. Most of the classical writers on enteric fever in childhood (Rilliet, Eustace Smith, Murchison, and West) agree that rash is less frequent, and that even in severe cases spots are often quite absent or very sparse. They agree that the spots are less commonly confined to the abdomen and are frequently on the back, particularly about the interscapular region, the loins, and the limbs. This may possibly, however, be due to the facility with which young children, even with enteric fever, are turned about and examined on their posterior aspect.

Complications.—William Osler²³ has drawn up a schedule of specific instructions to be followed in cases of typhoid fever in which perforation is suspected:

I. Instructions should be specific and definite to the night superintendent and head-nurses to notify the house-physician of any complaint of abdominal pain by the patient, of hiccough or vomiting, of a special rise of pulse or respiration, of sweating, or of signs of collapse.

II. House-physicians should note the character of the *pain*. As to (a) *onset*, whether only an aggravation of slight abdominal pain, such as is common both with constipation and with diarrhoea, or whether it was a sudden, intense pain which caused the patient to call out, and which, though relieved by stupes and ordinary measures, soon recurred in paroxysms and grew worse.

(b) *The locality*, whether diffuse or localized in the hypogastric or right iliac regions; radiation, as to the penis.

It is to be borne in mind that abdominal pain of a severe character may be associated with an acute pleurisy, with distended bladder, with cholecystitis, and with a packed rectum, or may follow an enema.

III. **STATE OF THE ABDOMEN.**—The condition to be noted in writing at once as to the following particulars:—

(a) Whether flat, scaphoid, or distended. Whether, if distended, it is uniform or chiefly hypogastric.

(b) Respiratory movements, whether present, if uniform and seen both below and above the navel.

(c) Palpation, as to tension and pain, locality and extent, and degree of pressure necessary to elicit; muscle rapidity and spasm, whether present or not, and in which special locality, and noting particularly its absence or presence in the hypogastric region and the right iliac fossa.

(d) Percussion—character of note in front of abdomen and in flanks. Liver-flatness; extent; in middle, nipple, and in midaxillary lines. Note specifically every third hour. Remember, too, that obliteration may occur in a flat as well as in a distended abdomen. Auscultatory percussion may be helpful.

(e) Auscultation—obliteration of signs of peristalsis; presence of friction.

(f) Examination of rectum, whether tenderness, fullness between rectum and bladder.

(g) Stools—character; frequency; presence of blood or sloughs.

IV. **GENERAL CONDITION OF PATIENT.**—(a) *Facies*, whether change in expression; risus, slight or marked; pallor; sweating, etc.

(b) *Pulse*—change in rhythm, rate, and force.

²³ Phila. Med. Jour., Jan. 19, 1901.

(c) Temperature, whether a drop or not, whether after a tub or not.

(d) Respiration—sudden increase; not infrequent; whether shallow or sighing.

(e) Sweating, if subject to, during attack; if onset with the pain; whether local or diffuse.

(f) Vomiting, whether with onset of pain or not; character of vomiting.

(g) Hiccough.

V. BLOOD-COUNT.—Leucocytosis, stationary or rising. May be marked and early. In a majority of cases well followed there is a rise. The constant leukopenia in typhoid fever has to be taken into account. Also a count of the red blood-corpuscles and hæmoglobin, as a decided drop might suggest hæmorrhage.

George Ogilvie²⁴ remarks that in nearly all cases of jaundice in typhoid which end fatally this symptom appears some time before and lasts until death; and, even where its onset is in an earlier period of the disease, it persists during its course, although it may decrease in intensity. Personally it is not believed that jaundice is quite so rare and fatal a complication of typhoid fever as has been frequently presumed. It is a most unusual occurrence for jaundice to appear at the onset of the disease, to gradually disappear with the falling off of the temperature, to last through the whole course of the disease, and yet to lead to a favorable termination. In fact, similar occurrences are so rare that they may lead—and have led—to the discrediting of the diagnosis of typhoid fever in such instances. A negative result during the first and even at the beginning of the second week proves nothing against the typhoid character of the disease; and in order to arrive at a definite conclusion the agglutination-test

has to be repeated several times at short intervals.

Deiters²⁵ has observed, at the asylum at Andernack, the various psychoses occurring in typhoid fever. These psychoses are divided into three groups: first, the initial delirium attributable to the specific toxins or ferments circulating in the patient's blood and acting on the brain; secondly, the psychical disturbance of the pyrexial period attributable to the action of toxins and of the high temperature; and, thirdly, the post-febrile psychoses associated with the stage of convalescence and the condition of general bodily and cerebral exhaustion during this stage. The initial delirium was noted in two cases in children of neurotic parents, the symptoms being those of acute mental confusion developing on a basis of hallucinations. This form constitutes the culminating point of a series of prodromal symptoms, the chief of which are restlessness, dullness, and apathy, and wet and dirty habits, the total duration of these symptoms being about ten days. Such delirious manifestations occurring in a neurotic child at the onset of fever should make the physician suspect typhoid fever, and consider that treatment in bed should at once be adopted in view of the possible gravity of the case.

Pathology.—The points T. J. Mac-lagan²⁶ notes in connection with the bowel-lesion are: 1. That the structures on which the typhoid bacillus exercises its specific effects are the solitary and agminated glands situated in the sub-

²⁴ Brit. Med. Jour., Jan. 12, 1901.

²⁵ Münchener med. Woch., Nov. 20, 1900.

²⁶ Lancet, Dec. 8, 1900.

mucous coat of the small intestine. 2. That the change which it causes in these glands is inflammatory in nature and essentially consists in proliferation of their cellular and granular contents, with consequent swelling and hardening of the glands. 3. That this inflammation is generally sufficiently severe to cause gangrene and sloughing of the affected glands. 4. That the direct action of the typhoid bacillus is limited to the glands of the submucous coat; and that it has no direct action on the mucous, muscular, or peritoneal coats. 5. That the sloughing process which destroys the glands necessarily also destroys the mucous membrane situated over them. 6. That, with the process of sloughing and suppuration, there come into play other new and morbid agencies: the various forms of cocci associated with these processes. 7. That to these new agencies rather than to the typhoid bacillus are to be attributed all the more serious complications and all the formidable symptoms, general as well as local, which are apt to show themselves during the third and fourth weeks of the disease.

Prognosis.—A brief summary of the methods of hospital treatment of typhoid fever is given by F. S. Johnson²⁷ as follows:—

Under expectant — *i.e.*, nursing — treatment the mortality is nearly 20 per cent., varying widely, however, in different epidemic or endemic conditions.

Under special attention to the septic conditions in the alimentary canal the mortality was reduced to two-thirds of the natural expectancy.

Under bath treatment, or bath and antiseptic treatment combined, the mortality has been reduced to about one-third of the natural expectancy.

Prophylaxis.—Henry Cayley²⁸ thinks

that the importance of the value of anti-typhoid inoculations in producing immunity against enteric fever can hardly be overestimated. The results of the inoculations of members of the staff and establishment of the Scottish National Red Cross Hospital serving in South Africa are of interest sufficient to warrant their publication.

The first section of the hospital, consisting of 61 persons,—officers, nursing sisters, and establishment,—left Southampton on April 21, 1900, by steamer *Tanjore* for South Africa. During the voyage out all except 4 of the 61 *personnel* of the hospital were inoculated twice at an interval of about ten days. The injections were all made in the flank, and were all followed in from two to eight or ten hours by marked symptoms, both local and constitutional, lasting from two to four or five days.

In many cases the symptoms were just as severe after the second as after the first inoculation. This would seem to show that it takes more than ten days before any immunity is established. Two of the nurses were not inoculated because they had both suffered from enteric fever, and 2 of the orderlies were only inoculated once.

Immediately after reaching the Cape the hospital was sent to Kroonstadt, in the Orange River Colony, and remained then as a stationary hospital till the middle of October. During this period there were always many cases of enteric under treatment in the hospital. Further, some of the medical officers and student orderlies had charge of the Kroonstadt Hotel temporary hospital, which was crowded with enteric cases, and the nursing sisters for three weeks

²⁷ Med. Age, March 10, 1900.

²⁸ Brit. Med. Jour., Jan. 12, 1901.

did duty in the military hospitals at Bloemfontein in May and June, when enteric fever was at its worst. There was not a single case of enteric among the *personnel* of this first section of the hospital.

The second section of the hospital, medical officers, nurses, and establishment—82 in all—left Southampton in May, 1900. On board ship nearly all were inoculated, but many of them only once. The material for inoculation had been on board for some time, and was not so fresh as in the first instance. Of this second section, one nurse had enteric at Kroonstadt. She was the only one, out of a total of 36 nurses, who suffered from enteric, and she was the only nurse who was not inoculated, excepting the 2 who were protected by a previous attack of enteric. A third section of the hospital, consisting of 4 medical officers and 16 nurses, went out in July; they were all inoculated, and none of them had enteric.

Of the second section 5 orderlies had enteric fever at Kroonstadt, of whom 2 died. Of these 5 there were 2 inoculated (once) and 3 non-inoculated. Of the 2 who died 1 had been once inoculated.

Of the first section who had been inoculated four months previously, Dr. Dodgson tested the blood of 23. Of these, 21 gave good reaction with dilutions ranging from 1 in 40 to 1 in 500; 2 gave only slight reaction—these were the two orderlies who had only been once inoculated.

Of the second section of the hospital who had been inoculated only three months previously, the blood of 22 was tested. Of these 11 gave no reaction, 9 gave very slight reaction, and only 2 gave good reaction.

It would appear from the above that

the members of the first section were much more fully protected against enteric than those of the second section.

The results above given are very strong evidence in favor of the protective power of the antityphoid inoculation, when the inoculations are very carefully performed, and they point to the necessity for two inoculations at a suitable interval.

Diet.—A series of cases of typhoid fever has been observed in the City Hospital of Nikolaeff by E. S. Timen.²⁹ At first the diet of all the patients consisted of milk (about 1 litre daily), beef-broth, and of Stokes's mixture in which the brandy was replaced by Marsala. In addition, the patients received a sufficient amount of sour drinks, tea, and water. In a number, milk diet was accompanied by accumulation of gases in the intestines, constipation, or diarrhoea, which did not disappear on addition of lime-water to the milk. Therefore there was added to the diet soft-boiled eggs, crackers, and white bread without crust. If the patients did well under this diet, and if the appetite increased, chicken-broth and half a chicken or a meat-cutlet was added. In some cases the patients at first refused solid food, but the nurse was instructed to insist on their eating what was offered, and the patients rapidly became accustomed to the change of diet. The only rule followed was that, if the patient's appetite was not aroused in a few days after admission, he was kept on milk, but those who had an appetite from the first or who acquired one after a few days, received solid food as soon as possible. If a patient who had been on solids complained of abdominal tenderness, or showed distension of the intes-

²⁹ *Vratch*, Nov. 25, 1900.

tines, an enema was given, a cold compress applied to the abdomen, and the diet changed to milk. Solids were resumed on the disappearance of the symptoms. The total number of patients on solid food was 32. Of these, 14 got solids after a few days' milk diet, and 18 about the third week of the disease, when the general condition was good and when the morning remissions were more marked. All these patients recovered. In no case was there any unfavorable result as regarded the bowels. There were small hæmorrhages in two cases. A relapse occurred in one case. The influence of solid food on temperature was not marked.

In seventeen months of G. W. Moorehouse's³⁹ service in Lakeside Hospital—March 1, 1899, to July 31, 1900—one hundred and fifty individuals with typhoid fever have been discharged from the hospital.

In addition to precautions designed to prevent the spread of the disease to other patients and to the attendants, the general treatment and management of cases of typhoid may be very briefly told. Their mouths and throats were kept clean by the use of sprays and mouth-washes, and they were guarded, so far as is possible, from unnecessary exertion. The temperature was taken every three or four hours, and when above 102.5° F. a tub-bath was given. The initial temperature of the bath was 85° F., and this was reduced in proportion to the temperature of the patient, but not usually below 68° F. An initial dose of calomel was given to about one-half the cases; later, enemata were relied upon to relieve constipation. For tympanites turpentine stupes and enemata containing turpentine were used with satisfaction. Other than the above there was very little

medication unless stimulation seemed necessary. Alcohol, usually in the form of whisky, was the stimulant most frequently used. Strychnine takes second place in the list of stimulants. Next to strychnine strong coffee was a not infrequent order. 4 ounces every four hours, and in a certain class of cases, particularly those with well-marked apathy, it gave very striking and gratifying results. Digitalis was used in one or two desperate cases. In patients with profound toxæmia infusions of salt solution were used a few times. As the general condition of the patient improved after entrance, frequent inquiries were made as to the return of the appetite, and, when that was noted, soft typhoid diet was ordered, usually at once without direct reference to the temperature. At times a patient might be hungry very shortly after complaining of severe abdominal pain, or after having had a hæmorrhage from the bowel, or while the temperature was still very high, and in such cases the feeding would very likely be withheld for a time. The appetite, and not the temperature, was made the guide to the continuance and to the increase of the diet once begun, and a number of patients went through an entire relapse without any decrease in the diet, the appetite holding good during the entire time. Sometimes a patient was ordered back on to a milk or other liquid diet on the occurrence of a rise of temperature, to see what effect it might have on the subsequent course of the fever. This procedure, however, has in no case seemed to cut it short in any way. On the other hand, in cases with persistent anorexia, associated with a falling temperature, the visiting physicians have

³⁹ Boston Med. and Surg. Jour., Nov. 15, 1900.

manifested a disposition to tempt the appetite of the patient by ordering the larger variety of the soft typhoid diet.

As to sitting up, the general rule was that the patient must have been for ten days with a normal temperature. In case the temperature varied within practically normal limits, but frequently reached 99° or 99.5° F., the first bed-rest was postponed for a time, usually to the end of the second week of such temperature.

In December, after the first eight months' experience, a series of typhoid diets was adopted at the Lakeside Hospital, for the purpose of simplifying the orders for patients with typhoid fever, and as an aid in making their care uniform throughout the hospital. The diets adopted are as follow:—

MILK DIET.—The standard for a milk diet shall be 8 ounces every two hours, subject to special directions as to night feedings. Watch stools for undigested milk. Report and record failure to take full amount.

LIQUID TYPHOID DIET.—In twenty-four hours: Milk, 8 ounces four times; milk, 6 ounces with tea or coffee, $\frac{1}{2}$ to 1 ounce twice; albumin-water, 8 ounces twice; beef-tea, 8 ounces once; malted milk, 8 ounces once; chicken-broth and barley-water, each, 3 ounces once; beef-juice and barley-water, each, 3 ounces once. Those liquids, which are to be given only once in twenty-four hours, may be replaced by equivalent amounts of any of the following: Broths, milk-whey, slip, junket, strained soups, or gruels.

SOFT TYPHOID DIET.—Add to the liquid or milk diet: (1) ice-cream, well-cooked rice (boiled), broths may be thickened with it; (2) soft-boiled or poached egg on soft toast, *blanc-mange*

and milk puddings, calf's foot and other gelatin jellies; (3) gruels, crackers or bread softened in milk or broths, macaroni, finely-minced and scraped meats. The increase in diet to be very gradual, one addition the first day, two the second, etc., scraped beef on the fourth or fifth day.

TYPHOID CONVALESCENT DIET.—Add to anything already given the following in about the order mentioned: Soft parts of oysters, a tender sweetbread, chop, squab, game (small), chicken, fish, cutlet, steak, rare roast beef. Mealy baked potato may be given with any of the meats.

FULL TYPHOID DIET.—Six A.M., milk. 8 A.M., breakfast; a cereal with cream and a small amount of sugar if desired; milk with tea or coffee, egg on toast, bread or toast with butter if desired. 10 A.M., bread and butter, with gruel or milk, or broth with egg. 11.30 A.M., dinner: soup, which may be thickened; some meat, as chop, or cutlet; or fish, or steak, or roast beef, or the soft parts of oysters, or sweetbreads, or squab, or small game; mealy baked potato, or rice, or macaroni, or spaghetti, with a simple dessert, as ice-cream, or *blanc-mange*, or milk pudding. 2 to 3 P.M. like 10 A.M. 4 to 4.30 P.M., supper: creamed chicken, or a bit of cold meat, as chicken or roast beef; bread, and milk flavored with tea or coffee. 6 P.M., cocoa, gruel, or broth. At night, milk, two to four times.

On the relatively-rare occasions when milk was very repugnant to the patient the liquid typhoid diet was ordered, and still more rarely milk was wholly omitted from the bill of fare. In such cases the change to a more liberal diet was made as promptly as possible.

One hundred and seventeen cases were given soft typhoid diet before or

very shortly after the temperature became normal.

The total number of deaths in the series was 13. All were on a milk diet at the time of death, but 1 had been put on soft diet on the twenty-sixth day of the disease; with a very moderate appetite and a temperature which ranged from 99° to 101.5° F. Nine days after the order for soft typhoid diet had been changed to one for milk he perforated, was operated upon, but did not recover. In the remaining 11 cases death occurred in from seven to fifteen days from the time of entrance, while still on a milk diet. Thirteen deaths in 150 cases gives a mortality of 8.67 per cent.

In no case in the 117 given soft diet, most of them when the temperature had still a considerable daily range, was there intestinal hæmorrhage as a sequel.

In general, the condition of patients who are being fed is very satisfactory: they begin to put on flesh at once, and show a continuous gain in strength and spirits, as well as in flesh. A fair proportion of all the cases have been heard from since discharge, and they usually report themselves as having returned to their ordinary employment shortly after discharge, and as never having felt better, the inference being that, as regards recovery of normal condition, liberal feeding is a distinct advantage.

According to J. M. Anders,³¹ in the care and management of the digestive tract correct feeding stands paramount. For the typhoid patient liquid nourishment—milk, broths, meat-juices, egg-white, and the like—is the safest, as it is the best form of alimentation, as a rule. The liquid articles mentioned can be alternated with each other, although milk, when well borne and not too vehemently objected to, should be given

throughout the entire course of the disease. It is important to administer the same at stated intervals—every two or three hours—and in definite quantities: 6 to 8 ounces at each feeding. As to quantity, however, this should be regulated with reference to the capacity of the gastro-intestinal tract. For example, if meteorism or nausea intervene, or the stools contain curds or oil-globules, or a marked increase in their frequency occurs, instead of having recourse at once to drugs, the patient's condition can be benefited much more by making a thorough investigation of the diet, particularly as to quantity and character, as well as of the condition of the dejecta. Peptonizing the milk if nausea occurs or it is not well digested, as shown on macroscopical or microscopical examination of the stools, and discontinuing beef- and mutton- broths if the bowel movements be too frequent, may render medicines entirely unnecessary. One may also diminish the quantity of all forms of alimentation for twenty-four hours, with marked benefit in some cases.

Treatment.—A. B. Shimer³² gives the results of the employment of thermol in a series of typhoid-fever cases. Thirty-two cases were treated by thermol without a death.

To summarize, thermol is an antipyretic of specific effect. In no case was the heart's action at all impaired, instead it was apparently strengthened. There was in all cases no greatly-decreased amount of urine, nor did the skin become exceptionally dry.

The earliest moment thermol is administered, in any case, and especially

³¹ Jour. Amer. Med. Assoc., Jan. 26, 1901.

³² Phila. Med. Jour., Jan. 19, 1901.

typhoid, the prompter the results and the more specific its action.

As an antipyretic, it is harmless, and can be given at any time or in any state, any harmful effect, as collapse or the like, never being noted.

The mode of administration is $4\frac{1}{2}$ grains at intervals of two, three, or four hours, and to be given when the fever begins to rise; and to be continued even after the fever has disappeared, in smaller doses and at longer intervals. No fear of collapse need be feared. Hence, there is no need of any additional medicine, as whisky or the like.

J. M. Anders³³ says the Brand method of treatment has a favorable influence on the gastro-intestinal tract, by reason of its action in reducing temperature, in lessening nervous manifestations, and imparting tone and vigor to the heart and the muscular system. While the external application of water is productive of these happy results, the internal administration also has decided advantages for the sufferer.

Hector Maillart, of Geneva, as the result of his study of the subject, states: "I feel convinced that the treatment of typhoid fever with copious drinks may be recognized as a definite method. In order that the treatment may be efficacious the patient should drink at least 5 to 6 quarts of water daily during the whole febrile period. There is no contra-indication to this treatment; feebleness of the heart, so far from contra-indicating the drinks, may become a special indication for them."

This method of treatment, however, does not have a controlling influence on the general course and duration of the disease. The quantity of water can be reduced to 2 or 3 quarts per diem, and administered, as Gilman Thompson properly advises, between the hours of

feeding, so that the gastric juices will not be too much diluted.

It has been personal habit, especially in robust individuals, to employ calomel for the first few days of the fever.

For the constipation sometimes present throughout the entire course of the disease, an enema of soap-suds, given every second day, is followed by the speediest and best results; in late protracted cases accompanied with an irregular intermittent fever, good results follow the administration of divided doses of saline laxatives. There is no special medicinal treatment for typhoid fever, but there is for the individual case.

Of the group of intestinal antiseptics, salol is personally used, the dose being 3 grains every three hours, or larger quantities, even if the symptoms are above the average severity.

For the marked distension of the bowel, especially noted when the colon is the seat of the principal lesions and diarrhœa is a prominent feature, turpentine is probably the best remedy. For the meteorism white turpentine or the oil may be administered internally; if the stomach becomes intolerant, then enemas of the oil combined with milk of asafetida are very efficacious. As turpentine is eliminated from the system through the lungs and kidneys, and on account of the overworked condition of the last-named organ, the drug should be used with great caution or discontinued on evidence of albumin in the urine.

The colon or lower bowel is sometimes the seat of extensive ulceration; this is productive of marked tympanites, and at times an exhausting diarrhœa supervenes, or involuntary discharges

³³ Jour. Amer. Med. Assoc., Jan. 26, 1901.

may occur. In these instances, intestinal irrigation, if judiciously employed, tends to sweep from the bowel decomposable material and irritating micro-organisms. One may combine with the water an antiseptic, as salicylic acid, 0.5 to 1 per cent.; or bichloride of mercury, 1 to 6000, used thrice daily, or every four hours, according to the urgency of the symptoms. If a decided catarrhal condition exists, silver nitrate, 0.25 to 1 per cent., may be advantageously employed.

The introduction of cold water into the rectum may also be practiced with happy results in suitable cases. It has other advantages than those enumerated above: it increases the tonicity of the sphincters and rectal muscles; by a reflex action of the nerves of the bladder, it causes this viscus to contract and empty itself, and, by a like stimulation of the sympathetic plexus, influences diuresis. Its antipyretic action is also evidenced by a reduction in temperature.

Cyclopædia of Current literature.

APPENDICITIS.

Diagnosis.—Despite all study of the disease, the diagnosis of appendicitis is not yet an absolutely-soluble problem. There are cases in which renal calculus, for instance, may simulate every symptom of an appendicitis and in which the only hope for differential diagnosis is the finding of a few blood-cells in the urine after careful microscopical examination. Even so ordinary a disease as typhoid fever may for some days simulate appendicitis so closely as to make diagnosis practically impossible. In this case the presence of leucocytosis is important. In typhoid fever, if there is no ulcerative process, as there usually is not at the beginning, there will be no leucocytosis. The number of white blood-cells will soon be recognized as an important diagnostic point in other regards. If marked leucocytosis is present in appendicitis a favorable prognosis exists, however serious the symptoms may be.

The presence of a collection of purulent material in and around the appendix often gives rise to symptoms in

parts of the body far distant from the appendix. Arthritic symptoms due to the presence of a subseptic state, a mild pyæmia, become sometimes a very interesting feature of certain cases. The mimicry of other intestinal diseases is quite common. Ordinary colic is usually appendicitis. Colicky symptoms in other parts of the intestinal canal may owe their origin to the reflex irritation of the pathological condition of the appendix, or to the presence of irritating material in the vascular system of the intestine. A very curious set of symptoms are those which in appendix cases seem to point to the existence of an ordinary indigestion, capricious appetite and recurrent pains after eating being prominent symptoms. Robert Abbé (*Med. News*, Jan. 12, 1904).

Treatment.—As to the non-surgical treatment of those mild cases of catarrhal appendicitis which are first seen when they are very evidently recovering without any bad symptoms whatever, personal practice has simply been: Ice-bag to the right iliac region, enemata for the bowels, fluid diet without milk,

total abstinence from opium in any form, and the use of the rectal tube for gas-formation.

No calomel (except in the general septic-peritonitis cases after operation) is given. In the other cases that are about to be operated on the therapeutic measures employed while waiting for the operation have been: Washing out the stomach for persistent vomiting; morphine hypodermically for the pain; rhythmical tongue-traction (Laborde's method) for hiccough; cold coil over the abdomen and rectal tube for gas-distension; strychnine hypodermically, with or without atropine, and hot-water colon irrigation, as heart-stimulants; copious rectal enemata for the constipation. Forbes Hawkes (*N. Y. Med. Jour.*, Jan. 12, 1901).

ARTHRITIS, PNEUMOCOCCIC.

The symptoms of pneumococcic arthritis may vary in severity from pain and slight swelling limited to a single joint to an intense inflammatory edema of the whole neighborhood of the articulation or of a whole limb, with severe pain, heat, and redness, with abnormal mobility from destruction of the ligaments, and with grating of the bared surfaces of the bones. The fever is generally high (from 102° to 104°). The nature of the arthritis can be determined only by its association with pneumonia or other pneumococcic infection and by bacteriological examination of the joint contents. The prognosis is grave, both as regards danger to life and the ultimate restoration of function to the joint,—in the former respect on account of the extreme frequency of constitutional infection by the pathogenic organism and its characteristic localizations in the endocardium, meninges, and other tissues, pre-

viously specified. In the cases that recover progress is slow, extending over many weeks, and the function of the joint is, as a rule, permanently impaired. E. J. Cave (*Lancet*, Jan. 12, 1901).

ASTHMA, DYSPEPTIC.

Chronic dyspeptic asthma is characterized by great shortness of breath on slight exertion, the condition being not paroxysmal, but continuous; it occurs in patients suffering from gastro-intestinal diseases, without any abnormal condition of the heart, lungs, or kidneys sufficient to account for it, and yields readily to treatment directed against the existing dyspepsia.

Patients suffering from this form of the disease do not experience shortness of breath to any great degree after eating. Vomiting has not occurred in the cases seen, and the dyspnea has, as a rule, not been relieved by belching. The shortness of breath is constantly brought on by some trifling exertion, as walking, going upstairs, stooping over to lace the shoes, or putting the clothing on or off.

In some cases slight exertion soon after meals caused greater shortness of breath than the same amount of exertion would cause at other times of day. Some of the patients suffered from attacks of dyspnea during the night. One patient, when an attack came on, would rush to an open window for air; another would grasp the mantel or head of the bed and struggle for breath; while yet another was relieved by rising and moving round the room. In all three the attacks passed off in a few minutes without vomiting, raising gas, or administration of medicine.

While an acute attack of dyspeptic asthma, coming on, as it does, after a meal, is relieved, for the time at least,

only by emptying the stomach, the dyspnoea attending the chronic form of the disease, being induced by exertion, however slight, is temporarily relieved only by rest. In both the acute and chronic forms of the disease permanent relief can only come from restoring the digestive organs to a healthy condition. F. H. Murdoch (*N. Y. Med. Jour.*, Jan. 12, 1901).

BREAST. INFECTION OF, DURING LACTATION.

When nipple wounds become infected, but before there are any symptoms of general infection or involvement of the deeper breast, the local wounds may be treated by the application of cotton saturated with alcohol. Nursing through a shield may be allowed.

The appearance of the symptoms of chills and fever generally indicates a deep infection of the breast. When this appears, nursing from the affected breast should be stopped, and the breast should be supported and put at rest by a bandage. Treated in this way, from 80 to 90 per cent. of all breast infections will terminate without abscesses.

For supporting the breast and putting it at rest, the simplest form of bandage will often suffice. This is a plain piece of muslin six or seven inches wide, encircling the chest. The nurse should distinctly understand that the breast is to be raised and supported, not compressed; with the patient lying on her back; the bandage under her, the nurse takes hold of one end of the bandage with one hand, and of the corresponding breast with the other, and draws the breast up to the middle of the chest, holding it there with the bandage; the patient is then directed to hold the breast in this position with the hand of the same side, the fingers being ex-

tended. Then the other breast is raised and held in the same way, after which the bandage is fastened by several safety pins, the lower border being drawn more tightly than the upper. If the bandage tends to slip down because the patient moves around more or less, strips of bandage over the shoulders may be used to hold it in place.

The double Y bandage holds the breast better than the circular bandage just described. It is made of strong cotton cloth, and consists of a back piece four or five inches wide, and fourteen to twenty inches long. To each end of it are strongly sewed two diverging strips, each from four to five inches wide, and about thirteen inches long. The lower limbs of the Y's which go under the breast are fastened together in front with safety-pins, then the upper limbs in the same manner. The upper and lower limbs of the Y's in front may be fastened together with safety pins, to support better the inside of the breasts. With this bandage the nipple of the sound side may be left free, so that the nursing of the child will not necessitate the unfastening of the bandage. If the circular bandage is used, it must be unfastened every time the child is nursed from the healthy side, or an opening made over the nipple.

Another form of bandage is that recommended by the late Dr. P. A. Harris. Its mode of application when only one breast is affected, and when the sound one is left exposed for the nursing of the child is as follows: A roller three inches wide, and from ten to twelve yards long, is required. Both breasts are covered with absorbent cotton, and a small pad of cotton to protect the shoulder is in readiness. Beginning outside of, and below, the affected breasts, the bandage is carried

twice around the chest, passing first across the front, then it is carried under the affected breast, over the opposite shoulder and again around the chest, once more under the affected breast, and the second time over the shoulder. Then it passes again under the breast, the lower half of which is now nearly covered, and around the chest above the sound breast. The next turn comes directly over the nipple of the inflamed breast, and above the sound breast. Two or three more turns, then cover the remainder of the affected breast. If any bandage remains, a firmer support to the breast will be given by making a turn again under the breast and over the shoulder, and still another under the affected breast, and above the healthy one, finishing with an extra turn over both breasts. The bandage must then be well fastened with from twelve to twenty safety pins placed in front, at back, and at the sides. The cotton over the sound breast may be removed or an opening made to nurse the child.

• When both breasts are to be inclosed, five or six yards more of bandage will be required. Begin with two turns around the body, and one turn under the first breast, and over the opposite shoulder as before. The bandage is then carried under the second breast, and over the back, across the shoulder opposite the second breast, down in front and under the breast again. Then it goes around the body, under the first breast, across the front part of the chest over the shoulder, under both breasts again and across the back, then over the shoulder opposite the second breast, and again under the second breast. This turn may be repeated the third time if necessary. Then the bandage is brought under the first breast,

now nearly half covered, above the second breast, across the back, above the first breast and under the second breast, thus forming a figure of eight around the breasts. This may be repeated if necessary, and then the bandage is fastened with two turns of bandage around the chest over both breasts. This breast bandage must also be fastened with numerous pins. It is convenient to make the first turn with the patient on her back, and have her to sit while applying the bandage to make it just tight enough.

A very valuable adjuvant to the treatment of breast infection is the application of cold by means of the ice-bag. The ice-bag is used in connection with the Y, or circular bandage. The thick layer of cotton which is employed in connection with the roller bandage interferes with the action of the ice.

Under this plan of treatment, it will be found in almost every case that the pain has largely disappeared in 24 hours, and at the end of from 48 to 72 hours that the local tenderness has disappeared and the nipple is healed. The ice may now be removed and nursing resumed, the child being allowed to stay at the breast not more than five minutes. If nursing increases the pain it must be stopped for one or two days more.

If, in spite of this treatment, some tenderness continues or reappears after a few days, and if suspicion of fluctuation exists, with perhaps a slight increase in temperature, one must suspect the presence of pus and open the breast. (C. S. Bacon (*N. Y. Med. Jour.*, Jan. 12, 1901).

BRIGHT'S DISEASE, CLINICAL VARIETIES OF.

The views regarding the clinical varieties of Bright's disease may be sum-

marized as follows: 1. Two forms of acute Bright's disease may be recognized,—one characterized not only by the well-known urinary changes, but also by the presence of dropsy; the other where dropsy is absent and where the distinction between the acute Bright's disease and mere congestion of the kidney is by no means easy. 2. That there are at least two forms of chronic Bright's disease,—one where the patient secretes a scanty, highly-albuminous urine and becomes markedly dropsical, the course of the malady being chronic and death occurring usually either from the mere water-logging of the tissues or from the development of inflammatory complications, or from chronic or subacute uræmia. The second form of Bright's disease where the symptoms often run a latent course for an unknown period and where the patient ultimately seeks advice on account of very vague symptoms of ill health, such as wasting, loss of strength, circulatory disturbances, or even where he does not seek advice until the onset of acute and fatal uræmia. In this form of the disease dropsy is absent, the urine is abundant and pale, and it contains a considerable quantity of albumin. It would seem that not only may chronic Bright's disease be chronic from the outset, but also that the two varieties of chronic Bright's disease are not necessarily different stages in one and the same morbid process, but represent rather the different effects of perhaps the same morbid process. J. R. Bradford (*Lancet*, Jan. 5, 1901).

CALCIUM IODATE.

Calcium iodate is a substance likely to prove of very considerable value both for external and internal use. It is an iodine compound containing 51 per

CALCIUM IODATE.

cent. of iodine and in addition 16 per cent. of available oxygen. On contact with putrescible organic matter, whether in acid or in alkaline medium, like other iodates, it slowly liberates iodine. In alkaline solution, while the organic matter is being oxidized by the oxygen set free from the decomposing iodate, the iodine slowly re-forms iodate through the decomposition of water. The iodate so re-formed in contact with another portion of putrescible matter yields further proportions of free oxygen and iodine to act as before, and so on. The process, therefore, is, so to speak, a continuous one. As most pathological discharges are alkaline, there is present in such cases the necessary conditions of the continuous action of an iodate. In an acid medium, also, in the presence of reducing substances such as easily-oxidizable organic matter, iodine is liberated and by the decomposition of water it sets free oxygen, which is used up in oxidizing any unstable organic compound that may be present. The iodine in this case passes into hydriodic acid or an iodine, and so eventually ceases to act. If, however, the acid present in a medium be hydrochloric,—as, for example, in the gastric juice,—chlorine, though not the only substance liberated, is certainly the one liberated in greatest abundance. Chemical equation shows that calcium iodate in contact with hydrochloric acid liberates as nearly as may be four-sevenths of its weight of chlorine. On this fact theoretically depends its use as a gastrointestinal antiseptic.

Calcium iodate acts more as a destroyer of the products of bacterial life than as a bactericide of any very decided degree of potency. Further, the function of the salt as a deodorant can be easily understood as the result of its

chemical action. Iodates decompose sulphureted hydrogen, precipitating it in part as sulphur, in part oxidizing it into sulphuric acid. As the factor of foul discharges is no doubt in many cases due to volatile sulphur compounds, if not actually to sulphureted hydrogen itself, one naturally expects a similar action in their case.

Iodate of calcium is without taste or smell, though a slight iodine odor may be detected on opening a bottle in which it has been kept for some time.

Calcium iodate is personally used in almost all cases where iodoform is commonly used. When ordered for internal administration, it is better to give it in solution. Three or 4 grains is a fair average for an adult. William Mackie (*Lancet*, Dec. 29, 1900).

CARDIAC AFFECTIONS, PROGNOSIS IN.

Conclusions regarding the prognosis of cardiac affections may be stated as follows:—

1. When a heart-murmur is discovered, a gloomy prognosis should not be given on that simple fact alone; the condition of the cardiac walls should be considered, the probable length of time the lesion has existed, the presence of dilatation or hypertrophy, or both combined. The occupation and temperament of the patient are very essential factors in the prognosis. Each individual is a law unto himself, and, though certain general principles may be established as a basis on which to build a working prognosis, one has no real means of recognizing the strength of the individual heart except its power of resistance against the poisonous effects of alcohol and tobacco or the inroads of the acute or chronic diseases, or the stress of laborious occupations,

or the debilitating influence of prolonged exposure. The diagnosis should be complete, the prognosis tentative. Or, as a distinguished English colleague has said: "Give your prognosis on the best suppositions, treat your patient on the worst." (Allbutt.)

2. Murmurs do not invariably mean endocarditis, and a prognosis based simply on the presence of a murmur would be rank injustice to the patient and demonstrate incapacity on the part of the physician. As a skilled observer has well stated: "With an apex-beat in the normal situation and regular in rhythm, the auscultatory phenomena may be practically disregarded."

3. To those interested in life-insurance work this is of great importance. The fact that a man has a murmur at the apex, of which he is entirely unconscious, whose heart is doing its work thoroughly despite the existence of the lesion, whose occupation is not of an adversely-laborious character, who has passed that period of life when acute rheumatic infection is liable to stimulate into fresh and renewed activity the latent inflammatory products of an ancient endocarditis should be factors to guide the judgment as to the probabilities of the future and prompt us in recommending for him a policy commensurate with the degree of cardiac inefficiency.

It should not be forgotten, in this connection, that a presystolic murmur does not always indicate the most serious of all lesions,—viz.: a mitral stenosis,—nor has a so-called musical apex-murmur any particular significance in prognosis, indicating, as it does, the passage of a stream of blood through a small aperture in the segment of a valve.

4. From the stand-point of longevity, aortic stenosis is a favorable lesion, and

the writer must differ from some authors who state that it appears, for the most part, after middle life. It is found at that period when a man should be at the highest point of physical capability: between thirty and fifty. It is true that it is frequently present as part of a general decay, and then develops in consequence of atheromatous changes taking place throughout the system, but it is more frequently present than has hitherto been suspected without such pathological manifestations being present.

5. One should not inform a young man between 18 and 25 that he has heart disease because one discovers some hypertrophy with no complications, the result, in most instances, of active exercise. In this condition it is, of course, understood that a careful consideration be given to a large number of causes, independently of diseases within the heart itself, which may produce hypertrophy; for example, that typical enlargement of the heart co-existing with an interstitial nephritis.

One should never hesitate to ask a patient to return for further examination, as the condition then may be quite different from the first examination. There are more snap "diagnoses" made in the realm of cardiac affections than in the study of diseases in any other portion of the body. J. J. Morrissey (*Jour. Amer. Med. Assoc.*, Jan. 12, 1901).

CHOLELITHIASIS.

Treatment.—For simple gall-stones Maurice Richardson (*Chicago Med. Recorder*, Sept., 1900) makes a vertical cut either between the fibres of the rectus or along the outer border of that muscle. The opening is first made just large enough for digital exploration. If the

CHOLELITHIASIS.

gall-bladder presents, it can easily be brought to the abdominal wound. The incision is enlarged to perhaps two inches: just enough to permit manipulations for removal of the stones.

The gall-bladder is next aspirated, a small strip of gauze being placed under the gall-bladder to catch any bile that may escape. Gall-stones can always be felt, if any are present in the gall-bladder, after aspirating. Next the fundus of the gall-bladder is opened sufficiently to introduce instruments, usually grasping the edges of the incision with two or three hemostatic forceps. A scoop is used for the removal of stones, and forceps with long blades, to permit gentle pressure. In most cases considerable hemorrhage from the gall-bladder is noticed after the introduction of the scoop or any other instrument. After the gall-stones are all removed, a stream of water being sometimes used to wash out small stones and *detritus*, a piece of gauze is placed temporarily in the depths of the gall-bladder to control the flow of bile, while digital examination is made of the cystic and hepatic ducts and the head of the pancreas. Whether the pancreas is healthy or not, if the bile-ducts are clear, the incision in the gall-bladder is either drained or closed. Usually the edges of the incision are sewed to the deeper muscular aponeuroses. If the gall-bladder is too small, and the tension too great when it is brought up to the abdominal incision, a tube is fastened into the gall-bladder and it is brought out of the wound, strands of gauze being placed so as to catch any overflow about the tube. At the end of a few days the tube and the strands are removed. A sinus remains, which rapidly closes.

The most serious calamity of gall-bladder operations is hemorrhage. Re-

cently Osler's suggestion of taking the coagulation-time of the blood before operating in all cases of jaundice, however slight, has been adopted, and this has aided already in avoiding disaster. A young lady presented herself for operation for an obstruction in the common duct. She had been jaundiced for a year and a half. The coagulation-time of her blood was taken and found to be about thirteen minutes, while in the control cases it was from three and one-half to four minutes. There was, besides, in this case petechiæ and bleeding from the gums. The patient was sent home and was given ox-gall, lime-juice, and fruit. Six weeks later she returned for operation. The coagulation-time was then four minutes, and the petechiæ and bleeding from the gums had entirely disappeared. A large stone was removed from the common duct without excessive hæmorrhage. The patient made a complete recovery.

CIRCUMCISION AS A PREVENTIVE OF SYPHILIS AND OTHER DISORDERS.

Simple as the operation is, certain details must be observed in its performance if the result is to be successful for the special purpose which one has in view. It must ever be borne in mind that the special object to be attained by circumcision as a preventive of syphilis is not only the removal of the prepuce, but, as far as possible, the obliteration of all folds about the glans. The advice usually given to the novice is to be careful not to remove too much skin. Consequently too little, rather than too much, is often removed. The result is that the retropreputial fold still persists: a matter of some moment from the present point of view. The incision should be made in such a way

as to be oblique from above downward and forward, and slightly concave forward; so that when the skin retracts it may sit snugly behind the corona. In other words, the plane of the incision should be as nearly as possible parallel to the plane of the corona. The reflected layer of the prepuce,—the so-called mucous layer,—which has been left untouched by the first incision, should, after being slit up and reverted, be carefully trimmed around the corona glandis in such a way as to allow the cut edge to come neatly into contact with the cut edge of the part first removed. A wedge-shaped piece of the frænum should always be removed. By so doing the folds which exist on either side are obliterated and the œdematous nodule which is liable to form at this point is prevented. All rough and unnecessary manipulation is to be avoided, as œdema is easily produced. It is personally thought that any community among which syphilis is rife and which imposes upon itself the obligation to circumcise every male child who appears in its midst will confer a great and lasting benefit upon its members, both present and yet to be, at an infinitesimal outlay. E. H. Freeland (*Lancet*, Dec. 29, 1900).

ECTOPIC GESTATION.

Diagnosis.—In personal experience, based upon about fifty cases, it has usually been by exclusion that the diagnosis of ectopic gestation has been made. Women have been repeatedly operated upon who have given no history of amenorrhœa followed by irregular bleeding. These women had usually given a history of the last menstrual flow having been markedly less than usual. This is a point which deserves to be kept in mind. Again, ectopic ges-

tation may exist without associated uterine enlargement, and without enlargement of the lower uterine segment: the so-called Hegar sign of early uterine pregnancy. As a rule, colicky pains were found fairly constant as a symptom of ectopic gestation. An exploratory vaginal section is of very great value. It should be done in every case in which the clinical history in the least suggests the possibility of ectopic gestation. When precedent amenorrhœa is followed by bleeding, one can be sure that the pregnancy is not normal. If under anaesthesia examination shows an enlarged and congested tube, the indication for operation is stringent. E. H. Grandin (Med. Record, Jan. 5, 1901).

EPILEPSY.

Surgical Treatment.—To summarize the present *status* of trephining:—

1. Idiopathic epileptics with typical *grand-mal* seizures should never be trephined.

2. Idiopathies in whom seizures are of the Jacksonian type should be trephined only when infantile cerebral palsies can be excluded, and when the family and personal degeneracy is at a minimum; if operation is determined upon in such cases, a very thorough removal of the epileptogenic area should be made; even then but a fraction of 1 per cent. recover from their epilepsy.

3. Traumatic epileptics may be trephined when the injury is definitely proved and stands in direct causal relation and has existed not more than two years. The prognosis will then largely rest upon the degree of the neurotic predisposition present. The earlier trephining is resorted to after convulsions begin, the better the prognosis. L. Pierce Clark (Med. Record, Jan. 12, 1901).

HÆMORRHAGE, POST-PARTUM.

Treatment.—When post-partum hæmorrhage does occur, the medical man must have a plan of treatment ready and be able to carry it out rapidly and efficiently.

The best method of treating a case of severe hæmorrhage will depend upon whether the placenta is still *in utero* or not. If the placenta be retained it must be at once expressed, or, if this is found impossible, removed by the hand. A hypodermic injection of ergotin, if ready, may be given and the uterus kneaded through the abdominal wall, while the nurse is ordered to prepare a hot douche. If the hæmorrhage be profuse and the uterus does not respond to the kneading, bimanual compression may be carried out until the douche is ready. In the small number of cases where the hot douche fails to excite any uterine contractions and the tone of the muscle is entirely lost, recourse must be had to continued bimanual compression, to plugging the uterus with gauze, or to the application of some styptic, such as perchloride of iron, to produce clotting of the blood in the vessels.

In cases where the hæmorrhage has been successfully arrested, but where the loss has been excessive, the condition of the patient is usually very grave, and energetic after-treatment is required if her life is to be saved. The greatest reliance is to be placed in the treatment of such cases on the hypodermic injection of strychnine, ether, and digitalin. Ether may be injected in doses of 10 minims every 10 or 15 minutes until five or six doses have been given. Where cardiac failure is very marked, hot water or normal saline solution should be injected. The former may be given by the rectum, the latter may be injected under the skin or into

a vein. In severe hæmorrhage the most valuable of these methods is venous transfusion.

Rectal injections of hot water with or without brandy are of great value in cases where the circulation is not too feeble. In cases of severe hæmorrhage accompanied by a very feeble action of the heart it is quite certain that no absorption occurs either from the stomach or bowel. In such cases venous transfusion must be carried out. Subcutaneous transfusion is too slow a method to use in cases of hæmorrhage. The solution employed should contain 1 drachm of salt to the pint, and must have a temperature of from 101° to 102° F. The solution should in all cases be filtered through muslin before use. If it be necessary to repeat the transfusion another vein must be opened. When the patient has been revived and the immediate danger of death from syncope is staved off, the extreme restlessness and headache may be treated by large doses of opium or morphine. Any further tendency to syncope is best treated by raising the foot of the bed and the administration of liquid food and stimulants in small quantities at frequent intervals. The great risk of subsequent sepsis must not be forgotten and the convalescence of such patients is of necessity a slow process. G. F. Blacker (*Lancet*, Dec. 29, 1900).

INDIGESTION, INTESTINAL.

Treatment.—The treatment of intestinal indigestion resolves itself into the consideration of the principles of dietetics. As in many other conditions, each case is largely a problem in itself, and must be treated individually. Most cases are caused by abnormal fermentation; therefore starches, sugars, and

fats should be interdicted, and proteids in the form of lean meats given. However, excessive amounts of proteids may be the very cause of the disorder, in which case all albuminous substances should be expunged from the diet-list, and some form of carbohydrates substituted. Predigested foods and artificially-prepared enzymes have been used with varying degrees of success. Drugs cannot cure intestinal indigestion, but they may be of inestimable value in overcoming the hyperacid condition and inhibiting the action of bacterial fermentation. A. P. Stoner (*Med. Record*, Jan. 5, 1901).

LEUCOCYTHÆMIA.

Symptoms.—It is somewhat curious that the first symptom of which patients complain seems to depend upon enlargement of the spleen, for one would naturally expect weakness, shortness of breath, or other consequences of anæmia to attract attention at an earlier date. In 6 cases 3 complained of swelling of the abdomen and 3 of pain in the left side, while shortness of breath, weakness, sickness, loss of flesh, pallor, thirst, dyspepsia, or, more accurately, flatulence and a feeling of oppression after food have been only secondary symptoms. Epistaxis, hæmatemesis, and hæmaturia occur pretty frequently, and there may be a peculiar diarrhoea, with thin, watery stools. These patients are generally anæmic-looking, but there are exceptions. Occasionally they are sallow or jaundiced. For ordinary diagnosis it is quite sufficient to obtain a drop of blood by pricking the finger and examining it under a magnifying power of 300 to 400 diameters, when the enormous increase of leucocytes can be readily recognized, but it is now usual

to make a much more elaborate examination of the blood.

The red and white corpuscles are separately counted, and by the examination of stained films the various kinds of leucocytes are determined and their relative numbers estimated. Finally, the percentage of hæmoglobin is calculated by the approximation of a diluted specimen of blood to a color scale.

Treatment.—The treatment should be designed to place the patient under the most favorable hygienic conditions,—in a healthy bracing climate on a dry soil, with good air, good food, and favorable surroundings,—and he should, if possible, be free from all sources of worry or mental emotion. The most valuable drug is arsenic, which should be commenced in small doses and gradually increased. All the above indications may probably be best fulfilled by sending the patient to undergo a course of arsenical waters at La Bourboule, in France (Département Puy-de-Dôme). Cold douches, with the galvanic and faradic currents, may possibly be useful. Quinine and iron are often employed, and oxygen inhalations may be tried, but are probably only resorted to in the later and more hopeless stages. The operation of splenectomy is hardly justified from the present pathological stand-point as a rational proceeding; but it has also against it the terrible objection that, out of 21 operations, only 1 patient has recovered. The chief danger seems to be that in leukaemic patients the blood has lost the power by which normal hæmostasis occurs, and the cut surfaces continue to bleed from vessels which offer nothing that the surgeon can tie. Transfusion appears to be useless. Ewart has recommended the inhalation of carbonic-acid gas, but no one has confirmed his favorable

opinion of this treatment. The enlarged spleen may be supported by a bandage or belt, and the stomach troubles are relieved by the administration of small doses of dilute mineral acid after meals. Robert Saundby (Brit. Med. Jour., Jan. 5, 1901).

MIGRAINE. THE RELATION OF. TO EPILEPSY.

The argument that there is a similarity between migraine and epilepsy does not seem to be well sustained. A paroxysm of epilepsy is sudden in its onset, begins almost without warning, and at once reaches its climax. Its duration is short, and the patient soon becomes normal again. That of migraine begins with slight symptoms, which gradually increase in severity and reach their climax after hours. Even the visual disturbances which sometimes usher in an attack are at first slight and gradually become more pronounced for half or three-fourths of an hour, when they reach their height, and then slowly disappear in the course of ten or fifteen minutes. In epilepsy there are convulsions, in migraine there are none. In epilepsy there is unconsciousness; in migraine there is not. In epilepsy there are varied sensory and mental disturbances which do not belong to migraine, and *vice versa*. Epilepsy often leads to insanity; migraine does not. Epilepsy has the character at first of an "explosion," while migraine is at first more like an "inhibition." The sequence of an attack is different in both diseases.

Being, therefore, unable to detect, clinically, any essential association of epilepsy with migraine, and being unable to trace any definite similarity between them, it is concluded that true epilepsy and true migraine are two dis-

ting and separate pathological manifestations of the cerebral nervous system. A. A. Hubbell (N. Y. State Jour. of Med., Jan., 1901).

MOSQUITOES, PROTECTION FROM.

* A simple remedy against mosquitoes consists in planting the castor-oil plant (*Ricinus communis*), or "*Palma Christi*," around the house and premises. The smell of the plant is disagreeable to mosquitoes and other insects, and it is an acknowledged fact that, where these plants grow, few mosquitoes will be found.

Personal residence is surrounded by plantain- and banana- trees, and in the past a great number of mosquitoes gathered between the leaves. Following the example of old settlers in the country, the castor-seeds were planted, which grew up in profusion, and there are now no mosquitoes to be found among the plantain- and banana- trees, —although the ground is kept well irrigated. By keeping branches and the seeds of the plant in rooms, the mosquitoes are driven away from the latter. E. H. Plumacher, U. S. Consul at Maracaibo ("U. S. Consular Reports," 1900).

OVARIAN GRAFTING.

The summing up of the testimony of the various experimenters seems to indicate that a properly-transplanted ovary may continue to perform its full normal function and that one may not only expect to prevent the symptoms of the menopause after a patient's ovaries have been removed, but may reasonably expect a pregnancy in a certain percentage of cases. Personally there is little doubt that the recorded cases of pregnancy after double ovariectomy are cases of pregnancy from accidental

ovarian grafting, a portion of ovary having remained on the distal side of the ligature, with establishment of adhesion circulation or contact circulation.

It is important to determine now just what method of ovarian transplantation gives the best opportunity for the ovary to continue its function. In all probability a certain proportion of the women whose ovaries have been removed in the past could have had ovarian grafting done, either from a piece of remaining healthy ovary or from a segment of an ovary from another patient, the operations having been so timed that the one who was to furnish the ovary could have been operated upon at the same *séance* with the one who was to receive the ovary.

The special dangers to be anticipated from ovarian grafting would seem to be no more than the dangers from simple uncomplicated laparotomy. R. T. Morris (Med. Record, Jan. 19, 1901).

PANCREATITIS, EXPERIMENTAL.

The results of experimental work upon pancreatitis lead to the conviction that (1) hæmorrhage *per se* is a common condition in all forms of pancreatitis: (2) when it is excessive, it dominates the process: (3) it is usually more pronounced than the inflammatory lesions, and the two conditions may be separate and distinct in the same organ or parts of the organ: (4) fat-necrosis is due to perversion of the pancreatic secretion and the direct result of the action of the fat-splitting ferment. Owing to the severity of the means used to provoke pancreatitis in experimental cases, it is not to be supposed that hæmorrhage would commonly occur independently of inflammation of the gland; and this is found to be the case. The disintegra-

tion of the pancreatic tissue is one of the results of free hæmorrhage. If, now, tendency of the pancreatic secretion to act upon the pancreas, as has been pointed out by Blume and by Chiari, is recalled, it follows that these injured foci might easily become the starting-points of another form of degeneration which would lead to necrosis of the gland and to reactive inflammation; that this dead tissue might then in turn form a favorable point for the location and multiplication of micro-organisms, whose presence would still further complicate the process. Simon Flexner (Univ. Med. Mag., Jan., 1901).

POTT'S DISEASE.

Diagnosis.—The characteristic attitudes of Pott's disease, although early and important signs, are also seen in osteitis of a syphilitic or malignant origin. It is, therefore, important to consider the personal and family history, the age, the location of the disease, and the mode of onset, as well as the pain and tenderness. Pain in the terminations of the nerves is not so early or so prominent a symptom in the lumbar as in the dorsal region, while local tenderness is more apt to be recognized in the cervical than in the other spinal regions. In the cervical region the vertebral articulations may become infected by organisms gaining access from the pharynx after measles or scarlet fever, with resulting muscular spasms and malpositions of the head simulating those of Pott's disease, and it may be a long time before it can be decided that a post-pharyngeal abscess has its origin in vertebral caries. A long time may also elapse before it can be known that a traumatic osteitis in the cervical or lumbar region has become tuberculosis. There are absolutely no pathognomonic

symptoms. Myers (Med. News, Jan. 12, 1901).

RABIES, RAPID DIAGNOSIS OF.

Recently Nelis, working with Van Gehuchten, discovered in the spinal ganglia of two men who had died of rabies, and of a number of animals, peculiar changes which they considered to be the diagnostic lesion of the disease. They have confirmed all the lesions described by other authors, but in addition have noted what they consider to be more diagnostic than any other. The most profound, the most constant, and the earliest lesions are noted in the peripheral cerebral and sympathetic ganglia, and the changes are especially marked in the intervertebral ganglia and in the plexiform ganglia of the pneumogastric nerve. Normally, these ganglia are composed of a supporting tissue holding in its meshes the nerve-cells, each one of which is inclosed in an endothelial capsule. The changes characteristic of rabies consist in the atrophy, the invasion, and the destruction of the nerve-cells brought about by new-formed cells derived from the capsule, which appear between the cell-body and its endothelial capsule. These new-formed cells increase in number, invade the protoplasm of the nerve-cell, and finally completely occupy the entire capsule. In answer to objections raised by Nocard and others, Van Gehuchten says that "the lesions of the cerebro-spinal and sympathetic ganglia which he and Nelis have discovered are not specific of rabies in general; they are only specific of the disease as it occurs naturally." The authors have made no claim regarding an early diagnosis of rabies, but only a rapid method.

The method of procedure recommended by Van Gehuchten and Nelis is

as follows: The ganglion is put at once into absolute alcohol, in which it is left for twelve hours, the alcohol being changed once. It is then transferred for one hour to a mixture of absolute alcohol and chloroform; next put for one hour in pure chloroform; then for one hour in a mixture of chloroform and paraffin, and lastly in pure paraffin for one hour. The sections are put in the oven for a few minutes, then passed through xylol, absolute alcohol, and 90 per cent. alcohol, after which they are stained for five minutes in methylene-blue, according to Nissl's formula, differentiated in 90 per cent. alcohol, dehydrated in absolute alcohol, and cleared in essence of cajuput and xylol. If frozen sections are cut they are put for a few minutes in 90 per cent. or 94 per cent. alcohol. In personal work 10 per cent. formalin has been generally used for fixing the tissues. They are then transferred to 95 per cent. alcohol, and finally to absolute alcohol. For the most part the tissues have been cut without imbedding, being attached to blocks by the aid of mucilage of gum arabic, though in some cases celloidin has been used. For the bringing out of the chromatolytic changes the Nissl method has proved the best, but the capsular changes were best brought out in sections stained by hæmatoxylin and eosin.

From personal study of this subject, the following conclusions seem justified:

1. When present, the capsular and cellular changes in the intervertebral ganglia, taken in connection with the clinical manifestations, afford a rapid and trustworthy means of diagnosis of rabies.

2. That when these changes are not present it does not necessarily imply that rabies is not present. The lesions

afford contributory evidence more or less valuable, depending on the duration of the clinical manifestations.

3. That in certain cases when the capsular changes are slight, such as in animals dying or killed in the early stages of the disease, the changes are more marked in the distal-peripheral end of the ganglion.

4. That the rabie tubercle of Babès is present sufficiently often to furnish valuable assistance in cases where only the central nervous system is obtainable without any of the ganglia, but in cases where the ganglia can be had they offer a simpler and easier method of diagnosis than do the brain and cord themselves. M. P. Ravenel and D. J. McCarthy (Univ. Med. Mag., Jan., 1901).

SEBORRHŒA TREATED BY BENZENE.

The methods hitherto employed for the removal of the crusts of seborrhœa sicca have been either alkalies, by which the crust is more or less saponified, or, more usually, oils of one sort or another whereby they are liquefied. Neither of these methods is very satisfactory. As the crust is composed chiefly of fat, it was thought that a solvent might act better, and benzene suggested itself. The first patient it was tried on was a young man, aged 25. He was getting very bald, and had a thick crust of seborrhœa sicca. It was applied with a shaving brush, and the whole thing disappeared in about two minutes. The benzene leaves the hair and scalp very dry, andunctions must follow. For this, bay rum and castor-oil, of each, ʒiiss; tr. canth., ʒij; aq. Coloniae, ʒss, may be used every morning, and the benzene be repeated about once in five days. For mild cases of the seborrhœa-oleosa type, the benzene may be com-

bined with an equal quantity of rectified spirits. No hairs are broken off in the removal of the crust. A considerable number of cases have been successfully treated in this way. R. W. Leftwich (Brit. Med. Jour., Jan. 5, 1901).

SUBARACHNOID COCAINIZATION.

Subarachnoid cocaineization has been personally used in twenty-one cases. Fourteen of these cases were obstetrical and seven gynaecological.

Concerning the technique of operation, the important points are:—

1. Surgical cleanliness in all things, and a fresh, aseptic solution of cocaine, full strength. The method of sterilization used at the present time is to raise the temperature of the solution (in small bottles) to 80° C. for one hour on two successive days.

2. The needle need not be longer than seven centimetres and should be kept sharpened.

3. A nurse should stand at patient's head when the puncture is made to keep the back arched forward. A case was recently reported of a patient suddenly sitting upright and breaking the needle.

1. During an operation the patient's ears should be kept closed with cotton and the eyes covered with a towel or cloth.

The results, as far as they go, would tend to support the view that spinal anaesthesia is not very dangerous, except perhaps to the child *in utero*. When it produces disagreeable symptoms, they are usually transient. In the labor cases it usually retarded progress. Finally, the anaesthesia it produces is for a fairly definite period of time without affecting consciousness and with full control of the voluntary muscles.

From a study of these cases the use

of the lumbar puncture in multiparae would seem to be less called for than inhalations of chloroform. The results obtained from its use in primiparae were also not very encouraging, but when good results can be obtained in a few cases the experiments should be continued.

In instrumental deliveries, when urgency is required and the patient is not of a very nervous temperament, the spinal narcosis seems to meet every indication. The delivery would be much facilitated by the patient's aid, which is not obtained under general narcosis, and the dangers of retained placenta and post-partum hæmorrhages are lessened.

It is doubtful if the puncture will ever replace general narcosis in abdominal operations. In vaginal celiotomy and minor gynaecological work it seems to have its greatest field of usefulness, and will, it is believed, come more in vogue as its merits are more fully observed and understood. N. J. Hawley and F. J. Taussig (Med. Record, Jan. 19, 1901).

SUPRARENAL CAPSULE, THE ACTION OF.

Dr. Samuel Floersheim, who is preparing a second paper on the subject of the use of the "Suprarenal Capsule in Diseases of the Heart," would be glad to receive from our readers reports of their observations as follows: 1. The condition of the heart and pulse. 2. The effect on the heart and pulse within ten minutes after the suprarenal powder, 3 grains, is chewed and swallowed without water.

UTERUS, ANTEFLEXION OF.

Treatment.—In antelexion the following operation gives promise of recovery. The procedure is comparatively

easy. The result may be accomplished through a short incision by the following simple technique: The patient being in the Trendelenburg position, the bowels are pressed out of the way with gauze and are held back with a broad retractor, which is carried to the bottom of Douglas's pouch. Finding the point of insertion of the ligaments on the posterior uterine wall, this point is seized with a pair of bullet-forceps. Traction is now made and the ligaments are put on the stretch, the body of the uterus being held forward, out of the way, by the forceps. Each ligament is now raised in turn with a blunt hook and is freely divided near its uterine attachment. Any remaining fibres are felt with the finger and divided in the same manner.

For protection against hæmorrhage and to avoid denuded tissue in the pelvis, the edges of the peritoneum are brought together, by a few catgut sutures. The uterus is now lightly suspended by two chromicized catgut sutures through the fundus, or just anterior to the fundus, according to the degree of the flexion. This keeps the divided ligaments apart until they have healed, and so guards against a relapse. Dysmenorrhœa and backache are usually relieved in large measure, if not wholly abolished; bladder irritability, aside from actual cystitis, yields at once; sterility is overcome in a fair percentage of cases, and the progressive endometritis and parametritis are cut short in a much larger number. As for the cases in which pregnancy supervenes, nausea and vomiting, if they occur at all, are certain to be much less severe than would have been the case had the tight ligaments remained to tie back the cervix in the hollow of the sacrum, and they yield readily to local

treatment. R. A. Kingman (Annals of Gynec. and Paed., Jan., 1901).

UTERUS, VAGINAL HYSTERECTOMY FOR CANCER OF THE.

The conclusions that appear to follow from a consideration of the after-results in 40 cases of vaginal hysterectomy are: (1) that in a certain proportion of cases patients suffering from cancer of the uterus may be relieved by operation for periods of many years,—in some cases for so long a time, seven years and upward, that there seems some probability that the relief may be permanent; (2) that the proportion of cases in which this result can be expected must remain very small so long as patients generally only seek advice at a late stage of the disease; and (3) that consequently the great *desideratum* is early diagnosis. Improvement in this direction depends to some extent on a better appreciation on the part of women themselves of the early symptoms of the disease, and especially of the significance of bleeding after the menopause, or of bleeding occurring at an earlier time of life between the menstrual periods. Early diagnosis, of course, also depends partly on the profession. Especially important is the general recognition of the gravity of the symptom just mentioned. It is equally important also to bear in mind that patients suffering from cancer of the uterus may, and generally do for a relatively long period, look quite well. They may be well nourished, or not infrequently even excessively fat; and, as regards the aspect of the face, they may appear to be in perfect health. A. H. N. Lewers (Lancet, Jan. 5, 1901).

VERTIGO, VARIETIES OF.

Vertigo may be classified as:—

1. The gastric, or digestive.

2. The cardiovascular.
3. The ocular.
4. The aural.

The digestive variety supervenes upon gastro-intestinal derangements, and its peculiarity is that the patient is greatly annoyed and vexed with it, but not much frightened.

The cardiovascular variety, when dependent upon weakness of the heart, always has nausea as its accompaniment. When due to cerebral endarteritis it has no nausea, but, instead, frequently excites a feeling of foreboding of mischief. It is generally very transient.

Ocular vertigo is interesting in having a purely psychical basis. It does not occur in the dark, for, to have it come on, the eyes must be open and looking out, and it may be relieved by closing them. It is the vertigo which causes the head to swim at the brink of a precipice. Its explanation is that the general muscular tonus which keeps us in position has for one of its main elements the information which the eyes are constantly, though unconsciously, giving us of our surroundings, and, when the eyes suddenly find a lack of surroundings, the muscular system as suddenly fails to receive its customary stimulus to maintain tone, and hence general muscular tremor immediately sets in. The most certain place to experience it is on the top of the great pyramid of Egypt.

The vertiginous sensation, however, which causes the most positive disturbance of all is the aural variety.

In pronounced cases the patient feels as if he were being dropped into a bottomless pit, while catching hold of things, or even lying down, gives but little relief. Everything seems to be giving way or turning around. Its invariable accompaniment, therefore, is fear, which may long outlast the vertigo

itself, rendering the patient a chronic coward who dreads all going about. This characteristic is often mistaken for the nervousness of a hypochondriacal dyspeptic, and unavailingly prescribed for through the stomach, or else mistaken in adults for some serious condition of the cerebral blood-vessels. All cases of vertigo with a predominant feeling of alarm, or with a story of onset while the patient is recumbent, should lead to a careful examination of the organs of hearing, when a condition may occasionally be found which has nothing to do with organic disease, though it usually has. W. H. Thomson (N. Y. Med. Jour., Jan. 5, 1901).

WHOOPIING-COUGH.

Treatment.—Heroin is a valuable therapeutic agent which allays cough and eases respiration. It reduces the number of respirations, but increases their force and the volume of inspired air. Aside from its almost specific effect in relieving cough, which has now been fully established, heroin also exerts a distinct influence in allaying dyspnea.

As to the use of the remedy in the treatment of whooping-cough, Dr. A. Holtkamp reports five cases in children of two to seven years of age. The drug was given guardedly in doses of $\frac{1}{120}$ to $\frac{1}{130}$ grain, usually three times daily. Under its administration the attacks were diminished both in severity and frequency. Floret describes three cases of whooping-cough in children, respectively three, four, and eight years old. The doses administered varied from $\frac{1}{15}$ to $\frac{1}{30}$ grain. It was always well tolerated, and rendered the attacks much more infrequent and less violent. There was also improvement of the general condition of the patients.

Referring to the statement made by von Herff that the removal of the deposits of mucus on the posterior laryngeal wall aborted the attack, the action of heroin renders this removal easier, by allaying spasm and causing the mucus to be more easily expectorated. Thus, in a nutshell is found explained the beneficial action of heroin in whooping-cough. The mucus accumulates on the posterior laryngeal nerve (the nerve of

cough), irritating this nerve and producing most intense cough. If these paroxysms can be aborted by the removal of the mucus from this area, the patient is rendered less liable to fall a victim to the serious complications of the second stage, and from the antispasmodic and expectorant qualities of heroin are obtained the desired results. H. F. Thompson (Phila. Med. Jour., Jan. 12, 1901).

Book Reviews.

THE TALE OF A FIELD HOSPITAL. By Sir Frederick Treves, Surgeon Extraordinary to Her Majesty, the Queen. Printed in Red and Black; Bound in Leather with Gilt Top; 115 Pages and 14 Handsome Illustrations from Photographs. Cassell & Company, London, and 7 and 9 West Eighteenth Street, New York.

Sir Frederick Treves gives a vivid account of his observations during a three months' stay in South Africa, where he had been sent by the English government as consulting surgeon to the forces in the field. The field hospital with which he was connected followed the Ladysmith relief column from the time it left Frere until it entered the besieged town. It included a stay at Colenso, where he witnessed the return of the wounded after the bloody encounter which occurred there. To one who has seen the typical British soldier in the streets of London, with his bright tunic, his jaunty cap, and his swinging cane, the contrast as portrayed by Sir Frederick is striking: "An untidy, sorrowful crowd, with unbuttoned tunics and slovenly legs—a gathering made piteously picturesque by khaki rags—rags which 'the wearer must wear.'" But the picture becomes pitiful when the wounded are described: "The saddest cases among the wounded were those on the stretchers, and the stretchers were lying on the ground everywhere, and on each was a soldier who had been 'hard hit.' Some of those on the stretchers were already dead, and some kindly hand had drawn a jacket over the poor, dust-stained face. One or two were delirious, and had rolled off their stretchers on to the ground; others were strangely silent, and at most were trying to shade their eyes from the blinding sun. One man, who was paralyzed below the waist from a shot in the spine, was repeatedly raising up his head in order to look with persisting wonder and curiosity at limbs which he could not move and in which he could not feel." Indeed, the book is replete with war's most cruel, wanton, atrocious work, but a medical man cannot but realize the nobility of his calling while reading the many lines devoted to the English army-surgeon, his devotion to duty and his courage in his efforts to mitigate suffering: "The green veldt was littered with the wounded, the dying, and the dead. . . . Near by the guns was a donga, and into this many of the wounded had crawled. The galloper who took up the news of the disaster reported the need of help for the injured. To this call Major Babbie, R.A.M.C., at once responded as a volunteer. His duty did not take him to the battlefield. He rode down to this Inferno. He might as well have ridden before a row of targets during the smartest moment of rifle-practice. Three times was his horse shot under him before he reached the donga. Here, in the face of a galling fire, he dragged the wounded into shelter, and a little later he ventured out under a rain of lead to bring in Lieutenant Roberts, who was lying in the open desperately wounded."

Would that many books such as Sir Frederick Treves's were written—only more gruesome, more horrible, more revolting. With floods of such sights before him, the stay-at-home statesman might eventually understand the intensity of the suffering he can indirectly impose upon his fellow-beings, and be made to recognize that the material claims of individual nations should not supersede those of humanity at large.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. With Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D. Fifth Edition. Thoroughly Revised. F. A. Davis Company, Publishers, Philadelphia, New York, Chicago, 1900.

Dr. Shoemaker's experience in the lecture-room has led him to reduce the number of agents which the student must study to those officially recognized in the pharmacopœias of the United States and Great Britain. This is a step in the right direction, and one particularly opportune,

since new remedies, or combinations of remedies, are nowadays being placed upon the market for the first time at the rate of at least one per day. The 625 remedial agents which the writer had to memorize when a student would make a poor showing nowadays when compared to the list the modern embryo-doctor would have to master were he asked to grasp mentally the intricacies of the thousands of would-be help-mates to the *vis medicatrix naturæ* which the twentieth century has inherited from the nineteenth. Imagine the poor chap who, besides his other numerous studies, has to memorize for his "final" a few hundred of such euphonious appellations as triphenylsosanilinemonosulphonic acid and its deleterious effects upon the neuroglia surrounding the iter a tertio ad quartum ventriculum of the tadpole! No wonder acquired hydrocephalus is on the increase! Pushed *ad absurdum*, the purpose of Shoemaker's new book stands out with due force. Our students are overworked. Could they be made to concentrate the time devoted to therapeutics upon the remedies in actual use and simply relegate to the position of auxiliary literature the multitude of barnacles which still give works on materia medica their portly proportions, another great step would be added to that inaugurated by the author. The fact that 900 remedies are given in his book indicates that our medicinal armamentarium still contains a lot of chaff which could well be left out. Even the pharmacopœia—American and English—could be pruned down one-half, and then stand another reduction.

We disagree with the author in one particular: His work is not only useful for students, but also for the general practitioner who desires reliable practical assistance in his daily work.

DEAF-MUTISM. *La Surdité: Etude Médicale* par Etienne Saint-Hilaire, Médecin Auriste de l'Institut de Sourds-Muets du Département de la Seine, etc. Published by Maloine, 23, Rue de l'Ecole de Médecine, Paris.

This is a valuable book, valuable not only on account of the information it contains, but owing to the care which the author has given every conclusion submitted. His analytical chart of the 153 autopsies found in the literature of various countries and the 670 books and monographs which constitute the bibliographical list further demonstrate the sincerity with which the work has been done.

The pathogenesis of deaf-mutism receives due attention and the various chapters upon the influence of heredity and infectious processes are particularly instructive. The symptomatology of verbal and auditory functions are studied with considerable care. The views recently propounded by Bezold are minutely given, those of the author coinciding with those of his German colleague. The general characteristics of deaf-mutes are also reviewed; their physical development, respiratory functions, intelligence, the comparatively great development of active senses, the degree of their predisposition to intercurrent diseases, etc. Treatment, of course, receives due attention, and without viewing acoustic exercises optimistically as do Urbantschitsch, Gellé, Laborde, and others, he nevertheless recommends them highly, and carefully indicates the technique and the best means of obtaining early results, when such are possible.

Altogether the book is as interesting to the general practitioner as it is to the specialist and teacher.

HEART DISEASE IN CHILDHOOD AND YOUTH. By Charles W. Chapman, M.D., Durh., M.R.C.P. Lond., with an Introduction by Sir Samuel Wilks, Bart., M.D., F.R.S. Medical Publishing Company, Ltd., London, 1900.

This little book reviews the main cardiac disorders met with in children and youths, the various features of each morbid condition being illustrated by cases witnessed and treated by the author. The reader has before him, therefore, a clinical analysis of practically all the varieties of cardiac cases not including the acute forms which he is likely to meet in a general practice. Considerable attention is given to exercise, sports and games, and their influence upon organic processes. Some forms of exercise the author considers as contra-indicated in all cases of organic disease—swimming, rowing, foot-ball, racing, etc.; in fact, all muscular efforts which demand sustained competitive or sudden exertion. Bicycling, on the contrary, entails but little exertion, provided the gearing is moderate and the pace is easy. This sport is recommended except in aortic-regurgitant cases. Moderate walking and in-door exercising instruments in which India-rubber recoil straps are used and also well thought of, provided, however, that overexertion be avoided. An hour at least should be allowed to elapse after a meal before muscular effort of the kind described is resorted to. Taken as a whole, Dr. Chapman's book is a very practical one, and represents a valuable addition to literature.

PHYSICIANS' MANUAL OF THERAPEUTICS. Referring Especially to the Products of the Pharmaceutical and Biological Laboratories of Parke, Davis & Co. Flexible Morocco; 12mo; pp. 526. Detroit, 1900.

We are grateful to Messrs. Parke, Davis & Co. for this *multum in parvo* of therapeutics. It is handsomely dressed and well printed. It consists of two principal parts, the first being devoted to "Therapeutic Suggestions" and the second to the "Materia Medica." A number of tables have been inserted which should prove useful in the hurry of clinical work. In the department of "Materia Medica," which is replete with information concerning drugs and

their preparations, we are pleased to find no reference to any secret combination. Not only is the exact formula given in each case, but in many instances a suitable dose is suggested: a feature that will surely be appreciated. The work of this firm is strictly on scientific and professional lines: a feature which should meet with the appreciation of the profession.

THE PHYSICIAN'S VISITING-LIST (LINDSAY AND BLAKISTON'S) FOR 1901. Fiftieth Year of Its Publication. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia.

Messrs. P. Blakiston's Son & Co.'s "Visiting-list" enters, with the present issue, the fiftieth year of its existence. It contains a calendar (1901-1902), "Table of Signs," the "Metric or French Decimal System of Weights and Measures," "Table for Converting Apothecaries' Weights and Measures into Grammes," "Dose-table, giving Doses in both English and Metric Systems to Correspond with new U. S. P.," "Asphyxia and Apnoea," "Comparison of Thermometers," "A New Complete Table for Calculating the Period of Utero-Gestation," and the usual blank leaves. The care with which all these various features are presented accounts for the prolonged existence of the visiting-list and the appreciation it has received from the profession.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Annual Reports of the Department of Agriculture for the Fiscal Year Ended June 30, 1900. Report of the Secretary of Agriculture. Departmental Reports. Washington, 1900.—A Cataract Knife of Excellent Shape and Proportion Devised a Century and a Half ago, by Dr. Thomas Young, of Edinburgh, and the Knives which Preceded it. By Alvin A. Hubbell, M.D., Buffalo, N. Y., 1900.—A Clinical Lecture on Empyema Following Lobar Pneumonia. By W. Hale White, M.D., F.R.C.P., London, 1900.—A New Photographometer. By John Milton Garratt, M.D., Buffalo, N. Y., 1900.—Address in Obstetrics. By Charles P. Noble, M.D., Philadelphia, 1900.—Nephrorrhaphy. By Charles P. Noble, M.D., Philadelphia, 1900.—Proctorrhaphy: the Suspension of the Rectum for the Cure of Intractable Prolapse and Inversion of that Organ. Charles P. Noble, M.D., Philadelphia, 1900.—Aseptic Minor Gynecology, with Demonstrations. By Augustin H. Goelet, M.D., New York City, 1900.—Iodine Used Hypodermically in the Treatment of Pulmonary Tuberculosis. By Alfred Careno Croftan, A.M., M.D., Pasadena, Cal., 1900.—Abdominal *versus* Vaginal Hysterectomy. By Henry O. Walker, M.D., Detroit, Mich., 1900.—Immunity in Tuberculosis; How Shall We Induce It? By Dr. H. B. Weaver, Asheville, N. C., 1900.—The Endowment of Medical Colleges. By W. W. Keen, M.D., LL.D., Philadelphia, 1900.—The Surgical Use of Celluloid Thread. By W. W. Keen, M.D., LL.D., Philadelphia, and Randle C. Rosenberger, M.D., Philadelphia, 1900.—I. A Bullet in the Popliteal Space. II. A Case of Dilated Oesophagus. Two Cases Showing the Value of the X-rays and at the same Time that in the First Case they Were Misleading. By W. W. Keen, M.D., LL.D., Philadelphia, 1900.—Two Unusual Cases of Surgery of the Trachea. By W. S. Jones, M.D., and W. W. Keen, M.D., Philadelphia, 1899.—Report of a Case of Resection of the Liver for the Removal of a Neoplasm, with a Table of Seventy-six Cases of Resection of the Liver for Hepatic Tumors. By W. W. Keen, M.D., Philadelphia, 1899.—A Case of Appendicitis in which the Appendix became Permanently Soldered to the Bladder, like a Third Ureter, Producing a Urinary Fæcal Fistula. By W. W. Keen, M.D., Philadelphia, 1898.—Rigidity of the Spine with Ankylosis and Deformity of Other Joints. By J. T. Eskridge, M.D., Denver, Col., 1900.—Locomotor Ataxia: a Review of Some of the Recent Literature. By H. R. Niles, M.D., Flint, Mich., 1900.—Sur Quelques Détails Anatomiques Concernant l'Étiologie de la Mastoïdite de Bezold. Par le Prof. A. A. G. Guye, Amsterdam, 1900.—De l'Aprosexie Nasale, Aperçu Critique. Par le Prof. A. A. G. Guye, Amsterdam, 1900.—De l'Action Thérapeutique de la Lumière. Par le Dr. Foveau de Courmelles, Paris, 1900.—Information Concerning the Angora Goat. By George Fayette Thompson, U. S. Department of Agriculture, Bureau of Animal Industry, Washington, D. C., 1901.—Trade of Denmark. By Frank H. Hitchcock, U. S. Department of Agriculture, Washington, D. C., 1900.—Red-Clover Seed: Information for Purchasers. By A. J. Pieters, U. S. Department of Agriculture, Washington, D. C., 1901.—Report of the Editor for 1900. By George William Hill, U. S. Department of Agriculture, Washington, D. C., 1900.

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Cyclopædia of the Year's literature.

APPENDICITIS.

Diagnosis. — F. W. McRae¹ remarks that, in practically all the cases that have come under his observation in the female, mistakes have been made in diagnosis by himself or the family physician, or by both. Almost all the attacks

have occurred at, or about, the menstrual time, and most of them have been diagnosed as "inflammation of the tube or ovary."

The great disparity in statistics as to

¹ N. Y. Med. Jour., Feb. 2, 1901.

the relative frequency of appendicitis in the male and in the female is due, in large measure, to mistakes in diagnosis: *i.e.*, the disease is frequently overlooked in the female. It is very much more difficult to make a diagnosis of appendicitis in the female than in the male. Sufficient stress has not been laid upon the fact that appendicitis in women usually occurs at or about the menstrual time. Many have been accustomed to attribute all abdominal or pelvic pain, occurring at this time, to some trouble with the genitalia; and this is the argument with which one is frequently confronted when the diagnosis of appendicitis is made in this class of cases.

The pain of appendicitis is more sudden in its onset, and very much more acute, than that of pelvic disease. It is frequently accompanied with nausea and sometimes with vomiting; muscular spasm is usually marked in appendicitis, practically absent in beginning pelvic disease. The general disturbance is very much greater, the progress more rapid, in appendicitis than in pelvic disease. An intact hymen argues very strongly for appendicitis. When in doubt, and the symptoms are aggressive, it is much safer to make a diagnosis of appendicitis and operate than to delay until the case is hopeless.

A. Robin² considers that a hyperleucocytosis will at once differentiate a suppurative appendicitis from simple colic, typhoid fever, ovarian neuralgia, impaction of feces, and floating kidney. Developed during the course of a catarrhal appendicitis, it will point to suppuration with as much precision as any of the diagnostic signs in our possession. A frequent blood-count in cases of appendicitis is almost an imperative necessity, because in some fulminant cases the advent of fatal tox-

æmia may be so rapid that no increase of leucocytes is present. Cabot reports four cases of appendicitis with general purulent peritonitis in which no hyperleucocytosis was found. When, however, examinations are made frequently, such mistakes would, in the majority of cases, be avoided, for one could always detect the hyperleucocytosis before the organism would become sufficiently depressed to fail to react.

Etiology. — Robert Abbe³ states the idea embodied in the word "catarrhal" appendicitis is, in the main, a correct one, and yet it so feebly expresses the morbid condition present in an attack of the disease that it should more properly be confined to the initial stage. Excluding the rarer cases, in which foreign bodies are entrapped, or in which the kinking of the appendix from its short mesentery produces "obstruction," the origin of the stricture is found in one of two causes: either the cicatrizing of the septic linear ulcer or the contraction of the catarrhal inflammation antedating the stricture by many years. The age of the stricture is of the greatest importance in studying the subject. In many cases of appendicitis in which study of the removed appendix shows one or more strictures, one follows back the history of attacks from five to twenty-five years, and thus can definitely say that such length of time was taken to develop the final grave conditions. One may say, therefore, that in the earlier years of life an infantile colitis, or a simple influenza, must have been the primary cause of an invasion which lurked in this, the only pocket of the alimentary canal, while the disease was swept from the main channel.

² Med. Record, Oct. 27, 1900.

³ *Ibid.*, Feb. 16, 1901.

From this study we may say with absolute certainty that the first attack of appendicitis recognized by the patient is in most cases the end of the disease, for the appendix shows the presence of a stricture which must have existed for many years. If one disputes this point and says that strictures sometimes form very quickly, there are still a considerable number of specimens which have behind the stricture a concretion which there is every reason to believe had taken years to form.

One should observe, first of all, that the concretions are always on the side of the stricture farthest away from the colon. They vary in hardness according to their age. It is rare to find any food-products in their composition. They always contain a large proportion of desquamated epithelium mixed with pus-corpuscles, the whole teeming with bacteria. If they are of harder variety, they are apt to be laminated and contain needle-like crystals and sometimes calcareous incrustations. These are indubitable proofs of the long existence of the stricture.

With some recent writers the erroneous idea still prevails that these concretions are formed in the colon and drop into the appendix, dilating it and producing trouble, but the fact that the concretion is always on the distant side of the stricture shows that it has grown where it is found.

Evidence is, therefore, complete that the stone does not begin to form until the stricture has contracted to so small a calibre that the exfoliated epithelium is unable to work its way into the colon in the ordinary process of elimination. Then the fluid contents of this terminal pocket alone pass through and the débris of epithelium left behind, irritating by its presence, begets prolifera-

tion, pus-cells, and other evidences of decomposition. It is hard to conceive that this process could take less than a few years.

The hard oval body acts exactly like ball-valve, or like a gall-stone in the gall-bladder, and, when its presence has induced necrotic changes, we will almost always find perforation at the point at which it presses.

To return to the possible primary cause of the catarrhal condition, twice an appendix has been personally removed a fortnight or more after the subsidence of appendicitis in conjunction with an acute attack of influenza, in both of which smart vomiting, fever, and exquisite tenderness of the appendix had ushered in the attack, and in which at operation acute inflammation with follicular ulcers of the mucous membrane of the appendix existed without stricture, thus illustrating that long after the system had thrown off the acute symptoms the appendix harbored this lurking infection. It is fair to presume that several years might have elapsed before the appendix would have had secondary strictures and a new variety of septic disturbance.

These illustrate Draper's suggestion, that in the recent wide-spreading epidemic of influenza there might be found an explanation of the origin of many a sequel in appendicitis.

Against the suggestion that gout may be a causative factor in producing appendicitis is the argument that appendicitis occurs largely in youth and childhood; that operation always discloses a mechanical cause for an attack; that the peritonitis is uniformly of bacterial origin, and not from gouty irritation; and that the type of joint disturbance is that of a low-grade pyæmic infection. Between attacks the strictured condi-

tion frequently shows no tenderness, and usually the appendix is impossible of palpation, even after years of recurrent trouble.

Given an appendix with one or more reasonably-tight strictures, it is only necessary to produce transient congestion to swell the tissues and block the stricture. Hence it is easy to understand the frequent recurrence of slight attacks, which are seemingly dependent upon such incidents as a violent fall, wrestling, long bicycle-rides, eating clams or green apples, or various other accidents, which, to the public, seem adequate causes. The acute attack, however, is really due to the general vascular disturbance of the alimentary canal, in which hyperæmia and excitement the appendix takes part. Even the menstrual disturbance provokes such acute attacks when the trouble is latent. The immediate sequel of the engorgement and blockade is an increased secretion within the shut-off tube. With increased bacterial activity, the size of the appendix is at once inordinately increased by the distension. This is demonstrated by operation done at the onset of the attack, when the surgeon often finds an appendix, which should be the size of a lead pencil and three inches in length, distended to the size of the finger and five or six inches in length. When it is cut away it immediately shrinks to nearly its normal size, but when again distended with alcohol it reproduces the condition found at operation.

In this interesting elongation the tip of the appendix will be found capable of a wide sweep among the bowels. It pushes across the median line, or to the bottom of Douglas's cul-de-sac, or sometimes upward to the liver. Under this high tension the penetration of bacteria,

whose increased virulence is greatly enhanced by the pressure into and through the coats of the appendix, excites an immediate leucocyte exudation; so that thickening and œdema rapidly follow, and the bacteria penetrate the unbroken peritoneum.

According to M. F. Porter,⁴ the uric acid diathesis is acknowledged as a predisposing cause of appendicitis. This condition is usually accompanied, and not improbably caused, by gastro-intestinal disturbances. The majority of cases of appendicitis occur in childhood. Enterocolitis and colitis find the majority of their victims during the same period.

Greig Smith regards the mechanical causes of appendicitis by far the more important. He says: "It may safely be affirmed that very few cases of appendicitis would become dangerous if there were a free passage always patent between it and the cæcum."

It is quite reasonable to suppose that either impaction of the faeces in the cæcum or swelling of its mucous membrane may produce closure of this passage. When one considers that both these conditions frequently, if not usually, obtains in colitis; that colitis is a disease of frequent occurrence; that both colitis and appendicitis occur most frequently in childhood; the conclusion seems forced on one that colitis is frequently the cause of appendicitis.

Personal experience has shown that colitis and constipation, either or both, frequently cause inflammation of the appendix. If this position is correct, then the physician has in the prophylactic treatment of appendicitis not only a legitimate field, but one from which he may expect to reap a harvest for which

⁴ Jour. Amer. Med. Assoc., Dec. 15, 1900.

both he and his patients may well be thankful.

For a number of years Joseph Price's⁵ experience differed from that of many operators in the fact that the trouble occurred 16 in the male to 1 in the female. An operation on a female, young or old, was uncommon; in boys and young men, very common. In the work of Hunter McGuire the proportion was precisely the same.

In the last three years personal experience has wonderfully changed: the proportion now is about the same.

Coincident with increasing numbers of young females was a group of old women—some five or six, 60 to 72 years old—with severe attacks of appendicitis, most of them gangrenous.

In young women and children it has occurred in working-girls and in young women fond of field sports. This has also been so in young men: about all of them have followed trades or some professional sport. It is surprising the great number of athletes—ball-players and professional swimmers—requiring the removal of the appendix.

Young surgeons seem more prone to the disease than any other class of medical men. Three-fourths of the surgical staff of one of the prominent hospitals in Philadelphia had their appendices removed.

The disease has been very common in Philadelphia throughout the last grip epidemic, and has also been more common in females than ever before in personal experience. In some villages and towns it has occurred in two and three female members of the same family. In the practice of a prominent western New York physician he saw three girls, aged 13, on the same day, and from all he promptly removed the gangrenous appendix.

Robert Morris⁶ says the point connected with the question of appendicitis being dependent on athletic exercises is of interest. If one places a patient on his back, then asks him to flex the leg so as to contract the psoas muscle, it will be readily seen that it rises in a hard firm ridge, hard enough to produce a traumatism if applied suddenly to any vulnerable appendix. A bicyclist riding a wheel up a hill contracts the psoas muscle so firmly and in such a hard ridge that the appendix is rolled over the edge of the hard psoas muscle with every stroke of the leg. This may, no doubt, be continued many times without producing any injury, but there is a definite cause for traumatism readily discoverable, and one which causes a break in the mucosa of the appendix, and an infection-atrium that produces the disease. A number of personal cases have given the history of violent exercise, which included the firm, constant contraction of the right psoas muscle. The young women of to-day are engaging in athletic exercises more than in years gone by, and this fact is certainly worthy of consideration. One can easily palpate the psoas muscle and satisfy himself that the appendix must be injured by it, producing a break in the mucosa, and there is the best kind of an infection-atrium.

Pathology.—F. A. Southam⁷ notes a series of 50 operations recently completed for recurrent appendicitis, as the conditions met with in the cases so treated serve to illustrate many points.

In almost every case the walls of the appendix were thickened, and at some point in its course the lumen was either

⁵ Jour. Amer. Med. Assoc., Nov. 24, 1900.

⁶ *Ibid.*

⁷ Brit. Med. Jour., Dec. 22, 1900.

partially or completely occluded. On the distal side of the obstruction the tube was frequently found to be dilated and distended with fluid, which in most cases was of a muco-purulent nature, but in a few instances clear and watery or consisting of pure pus. In some cases the appendix was quite straight, in others twisted or sharply bent on itself, occasionally at such an acute angle that its tip was almost in contact with its cæcal extremity.

In 15 cases suppuration had occurred in the neighborhood of the appendix. In 12 instances a localized abscess was present, often of small size: for example, not containing more than half a teaspoonful of pus. In other cases there was no distinct collection of pus, but small caseous deposits, evidently unspissated remains of former abscesses, of which the fluid portion had become absorbed. In 3 instances the suppuration was diffuse, there being well-marked evidences of general purulent peritonitis when the patients came under observation.

This fact—namely: the frequent occurrence of suppuration in recurrent appendicitis—should be borne in mind in the treatment of this affection, for it is a strong argument in favor of operative interference. In most of the cases where an abscess had formed the attacks had been frequent, and in each of the 3 patients where the suppuration was diffuse they had been so numerous that the patients had lost count of them.

The formation of pus was usually found to be associated with a perforation of the appendix. In one case the abscess presented in a very unusual situation,—namely, on the anterior wall of the rectum,—the first symptom indicating its existence being a sudden attack of retention of urine.

In 7 cases fecal concretions were found to be present; in 5 the concretion was lying inside the appendix, in 2 it was outside, having perforated the walls of the process and excited suppuration round it.

In only 1 instance was a true foreign body present, and this was a pin, which was found in an abscess-cavity in close proximity to the appendix.

In the majority of cases adhesions were present: in some instances so slight as to cause no trouble, in others so extensive and so dense that considerable difficulty was experienced, first in recognizing and afterward in liberating and removing the appendix. Their presence or absence bore no relation to the number or severity of the attacks, and it was impossible to say before the operation whether or not they would be encountered. For example, there was not a trace of an adhesion met with in one patient who had suffered from about twenty well-marked attacks, while in others, after only two or three slight attacks, they were found to be so extensive as to render the operation extremely difficult. When a local thickening or induration could be felt during the quiescent period following an attack, adhesions were always present, but the absence of this sign could not be taken as an indication that they did not exist.

A complication occasionally met with as the result of former attacks of appendicitis is intestinal obstruction from inclusion and compression of a coil of bowel in a mass of old adhesions. Several cases of this kind (not included in this series) have come under personal observation.

In 40 cases the patients had suffered from three or more attacks, and in 13 instances the attacks had been so fre-

quent that no count of them had been kept. In 5 cases there had been only one distinct attack, the operation being performed, as pain, tenderness, and a localized thickening persisted for some time after the subsidence of all the acute symptoms. The persistence, therefore, for some weeks or months of a tender swelling or thickening in the situation of the appendix, especially if accompanied by rigidity of the overlying muscles and a varying degree of pain, may be regarded as an indication for operative interference, even when a patient has suffered only from a single attack of appendicitis. In the absence of these symptoms operation is not advocated after a first attack. When, however, a patient has suffered from a second attack, operation should be advised even in the absence of any local symptoms during the quiescent periods.

Of the 50 patients, 35 were males and 15 were females. More than one-half of the cases were met with in persons between 20 and 30 years old, 12 occurred in persons between 10 and 20, 7 between 30 and 40, and 2 between 40 and 50; so that after 30 years of age the tendency to this affection diminishes as life advances.

Treatment. — Charles Rosewater^{*} argues that the treatment of appendicitis must be carried out along the lines indicated by the conditions found and impending dangers to be avoided. As the presence of intestinal accumulations threatens to aggravate the inflammatory conditions by local irritation, the first step in such a case should consist in the thorough emptying of the bowel by a mild mercurial purge (calomel) followed by a saline cathartic. A copious enema of warm salt water, a gallon or two, injected high up into the colon, assists materially in many cases, but should not

be resorted to when, by increase of the peristalsis, the rupture of an abscess may be brought about. Ice applications locally, in the form of an ice-bag over the groin, do much to assuage the pain. Opiates should be avoided as much as possible, because they so mask the picture of the disease as to leave the physician uncertain as to its progress. The patient should remain in bed on his back, with his surroundings quiet. His diet should be confined to liquid food, preferably peptonized milk, either warm or cold, according to his predilection. All solid food and such as leaves much waste should be forbidden until all signs of local irritation have subsided. Too great care cannot be taken in this particular during the first year following an acute attack of appendicitis, for upon this care will depend the permanence of the recovery. In the beginning of an attack, when vomiting is a prominent symptom and the stomach is very irritable, $\frac{1}{20}$ grain of calomel given hourly will quiet this irritability in a large proportion of cases. Bits of ice swallowed at intervals will assist in accomplishing this result. Sometimes iced champagne is retained in small quantities by such a stomach when other fluids are vomited. To combat the fever and nervous manifestations, salol and phenacetin, 2 grains of each every two to four hours, with $\frac{1}{8}$ grain of citrate of caffeine, yield good results. Judicious stimulation during the use of phenacetin is deemed advisable. As the inflammation subsides, a new element enters into the treatment, namely: the removal of the effects of this inflammation, — the removal and absorption of the inflammatory exudate. To attain this object iodide of ammonium in doses of 1 to 3

^{*} Med. Record, Aug. 4, 1900.

grains may be used every four hours, followed by copious draughts of hot water. All through the attack of appendicitis hot water should be given freely and in large quantities.

W. W. Keen⁹ thinks it might be placed as a rule with exceptions that no case certainly should ever be allowed to pass beyond two attacks, because it shows there is a condition which is sure to recur. Appendicitis of any gravity should be operated on, but every case should not be subjected to operation. What is permissible for a man of large experience and great operative skill is not applicable to every doctor in this country who may be called on to treat a case of appendicitis, and a consideration is therefore urged of what is best in the case of each individual patient. As a rule, operation will be best, but there are many exceptions. Also, as a rule, removal of the appendix is best, and as surgeons grow larger in experience and more skillful in operating from having had difficult cases to deal with, successfully and unsuccessfully, and learn by failures, they become more and more expert and urge the removal of the appendix in almost every case. If one had a very large number of cases of appendicitis, it would be unwise always to attempt removal.

Christian Fenger¹⁰ states that operation is not always the first thing to be thought of in appendicitis; if 80 per cent. recover from acute attacks they will be in a state of comparative safety. His own experience and his advice to his students is to first make the diagnosis, but not to operate simply because the diagnosis is made. If the symptoms improve, the patient may recover from the attack, but, if they become worse, immediate operation is indicated. About 30 per cent. of the patients have a sec-

ond attack. About one-half of these have the second attack during the first year, while 70 per cent. do not have any recurrence. The question when one should operate is a difficult one, but conservatism is emphasized, and it is not felt that the 80 per cent. necessarily should be operated on.

A. L. Benedict¹¹ says the differential diagnosis between medical and surgical cases rests on the following considerations:—

1. Temperature. If, when the case is first seen, it is above 102° F., unless an hysterical element or some other extrinsic factor is evident, or if the tendency is upward, one should operate. A temperature of even 100° or 101° F. that continues into the second day usually indicates operation. If the case is seen late, the up-and-down of a septic fever must not be confused with malaria.

2. Pulse. Gangrenous and septic processes, anywhere in the body, are apt to be marked by a rapid, feeble pulse, without rise of temperature; 90 to 100° F. may be taken as an arbitrary safety-line, with due allowance for age, sex, temperament, etc.

3. Blood. Marked leucocytosis indicates operation, but little attention should be paid to leucocytoses of less than 20,000: enough, for instance, to be readily detectable in the stained slide without enumeration. A differential count should also be made in order to be positive that the polymorphous cells are increased.

4. Local tenderness. In acute cases it is not always possible or advisable to feel the appendix. Muscular rigidity of

⁹ Jour. Amer. Med. Assoc., Dec. 15, 1900.

¹⁰ *Ibid.*

¹¹ Med. News, Dec. 1, 1900.

the right lower quadrant of the abdomen is more significant than general or unilateral reflex as indicating a focus of inflammation. It is not usually possible, by palpation alone, to distinguish between the appendix and a tube or ovary. Typhoid ulceration, general typhlitis, etc., produce less muscular reflex than a focal point of disease. Care should be taken to ascertain whether there is any marked difference between the right and left sides, whether the tenderness is diffused or sharply localized, etc. Sometimes the point of maximum tenderness moves with an irritating faecal mass: a favorable indication.

5. Vomiting, with considerable nausea, but almost projectile in type, usually indicates some focal disturbance in which the peritoneum is involved. It may occur in biliary obstruction, in disease of the uterine adnexa, of the appendix, or it may be due to obstipation with expansion of part of the bowel causing tension of the peritoneum, or to some pinching of the peritoneal coat along with external compression of the bowel. Vomiting of this type is not frequent in general inflammatory conditions of the caecum or the whole colon.

6. Urine. The most important diagnostic constituent is indican. This is to be expected to be present in excess in most cases of typhlitis and appendicitis. If, with other signs pointing especially to the appendix, indican is absent, but the urine contains a sufficiency of urea and other solids, so that renal failure need not be considered, one may exclude, with some probability, general typhlitis with stagnation and putrefaction of intestinal contents, on the one hand, and a large collection of pus, on the other.

7. The general aspect of the patient and the consistency of the symptoms.

One or more symptoms and signs may ameliorate, and yet the patient may present indescribable, but ominous, signs of serious disease. On the other hand, some one indication may be unfavorable, but others reassuring. In a recent case that presented leucocytosis and a temperature of 101.6° F. at the first visit, operation was advised, on the evening of the second day from the beginning of symptoms, but during the night the temperature dropped to normal, the pulse being within the danger-limit and the leucocytosis diminishing. Operation was postponed, with the advice of the consulting surgeon, and proved unnecessary.

In deciding when to operate in appendicitis F. E. Bunts¹² divides cases into five classes:—

1. Cases recognized as appendicitis at their inception and of moderate severity of symptoms. It is in this class, more than any other, that the physician and surgeon differ. Some will change so rapidly for the worse that the patient will be beyond the reach of surgical or medical aid in a few hours. In the less acute and more favorable cases, however, one can follow the progress in most instances very accurately and intelligently by means of the white blood-count. An increasing leucocytosis in appendicitis is sufficient evidence of increased inflammation and probably pus-formation to justify the urging of an operation, while a stationary white blood-count will almost certainly indicate the subsidence of the inflammation, and a favorable outcome may be almost safely predicted. To variations of temperature but little importance is attached, but an increasing pulse-rate is a matter of serious moment

¹² Med. News, Dec. 1, 1900.

and deserves careful consideration, for it is probably the early indicator of septic intoxication or possibly of septic infection.

2. Cases characterized by great urgency and intensity of symptoms. In these cases great pain is the most characteristic and important symptom, and they should be operated upon at the earliest possible moment.

3. Cases not recognized as appendicitis until several days have elapsed, symptoms then becoming pronounced. Even in these cases it seems that operation is indicated, although it may not be so urgently demanded, and, when strenuous objection is urged by the patient or the attending physician, it may be considered reasonably safe to wait long enough to determine, by means of the white blood-count, whether the inflammation is progressing or diminishing. If the former, one is to operate; if the latter, delay is, under such circumstances, permissible.

4. Cases recognized as appendicitis, but which the surgeon does not see until the symptoms have begun to abate, as indicated by diminution of pain, temperature, and pulse-rate. This class of cases is not infrequent, and immediate operation is usually advised against.

5. Cases in which delay has resulted in general peritonitis or septicæmia. Personally there is a great temptation to take the position advocated by one of America's greatest surgeons, and say in these cases, so unfavorable in their outcome, so sure to die, that operation is hopeless, for the operation gets the credit of killing the patient and undeserved discredit is insensibly cast upon a conservative operation, for unfortunately, even yet, to the average person out of the medical profession, appendicitis, grave or mild, is still appendicitis,

and the last thing done is the cause of death.

Samuel Lloyd,¹² in advising operative treatment in appendicitis, gives this rule: In all cases of appendicitis where the symptoms are progressing unfavorably, after twenty-four hours have elapsed, one should operate, and operate immediately; but, in those cases where there is an undeniable amelioration during this time, one is to wait until the interval, and operate then. In recurrent cases operation should be the invariable rule.

Personally a combination of the Morris and McBurney incisions is preferred. A curved incision, 1½ inches long, is made so that the centre of the incision is directly over McBurney's point. The aponeurosis of the external oblique is then carefully exposed, and split in the direction of its fibres, never cut. This brings the muscular surface of the internal oblique into view. These fibres are also split, in a direction as they run at right angles to the fibres of the external oblique. Now instead of using the retractors, as suggested by McBurney, the guy-lines of strong silk or catgut are put in position, one on each side of the divided internal oblique, and taking up as much of the divided muscle in each stitch as possible. This exposes the transversalis, which is also split in the direction of its fibres and also caught by two guy-lines. The transversalis fascia and peritoneum are now taken up together, and divided as much as possible in the long axis of the wound. If now it becomes necessary to enlarge the wound, the fibres may be split, and the skin-incision enlarged, until the muscular fibres are separated from insertion to attach-

¹² Phila. Med. Jour., Sept. 29, 1900.

ment. In closing the wound one should always remember that the aponeurosis splits more and more as the wound is manipulated; therefore the skin should be drawn down and then up until one is certain that the sutures have reached the highest and lowest points of separation.

Personally, the appendix is closed as follows: Having tied off the meso-appendix in section, and cut it free from the appendix, the peritoneum covering the appendix is cut through about half an inch from its base. This peritoneum is then pulled back until about a quarter of an inch of the cæcum is exposed. Then a fine, curved needle armed with 00 catgut is passed through the muscular coat of the denuded cæcum and base of the appendix, and brought out about one-sixteenth of an inch below the point where the peritoneum was cut. The needle is then carried across and inserted the same distance below the cut peritoneum and carried down through the muscular coat until it comes out at the margin of the reflected peritoneum. Then the needle is carried to the other side of the appendix, where a similar stitch is taken. The field of operation is carefully protected by a piece of gauze, and the appendix removed at the line of section of the peritoneum. Its lumen is then swabbed out with pure carbolic acid, and then with alcohol, and dilated. Now, while the operator holds the two loops of catgut by means of a pair of forceps so that they will pull on the margins of the appendical stump, the assistant draws the two ends taut. This invaginates the whole stump of the appendix and draws the cæcum together over it at the same time. The two ends of the stitch are now tied, and the reflected peritoneum is turned back so as to completely cover

the denuded portion of the cæcum. This is closed over by means of a continuous Lembert stitch, which may be carried down so as to cover over the cut places in the mesentery, if desirable.

In cases of suppuration, one should invariably be supplied with hydrogen dioxide at 10 to 15 volumes' strength. As soon as the pus is found the dioxide should be poured in until it is evident from its action that all pus has been destroyed.

RHEUMATISM.

Diagnosis. — H. W. Woodruff¹⁴ remarks that neither the eyeball nor its appendages are often affected by articular rheumatism. Iritis rarely occurs with it, but cases of conjunctival congestion without muco-purulent discharge have been noticed. One is compelled, however, to recognize the use of the term "rheumatism" as applied to an extensive group of symptoms which are probably dependent on the same causes with articular rheumatism. Sudden exposure to cold and overmuscular exertion are the principal exciting causes. Some of the diseases of the eye ascribed to the chronic type of rheumatism are iritis, episcleritis, scleritis, keratitis, orbital cellulitis, optic neuritis, choroiditis, ocular palsy, glaucoma, and opacity of the vitreous. The most important of these in point of frequency is iritis.

It has been computed by various writers of authority that iritis furnishes from 2.3 to 4 per cent. of all ophthalmic cases, and that syphilis and rheumatism are causative factors of this disease in 90 per cent., in the proportion of syphilis 60 and rheumatism 30.

In the absence of a syphilitic history

¹⁴ Jour. Amer. Med. Assoc., Feb. 9, 1901.

or signs one may find a personal or family history of acute or chronic articular rheumatism, symptoms of lumbago, neuralgia, sciatica, torticollis, or pains in the articulations or fascia or sensitiveness to changes in the weather. Many cases are subject to relapses of iritis in spring and winter: seasons of the year when rheumatic affections are most prevalent. Some cases of iritis alternate with rheumatism in other parts, and some recur with the swelling of the joints.

Next in frequency occurs a superficial form of scleritis, episcleritis, which consists of a circumscribed inflammatory nodule generally on the temporal side. It is not movable over the sclera, but firmly attached, and of a reddish-violet color. This condition can never be looked on as merely a local disease, but must be regarded as the manifestation in the eye of some systemic derangement. The large percentage, if not all of them, are associated with the rheumatic diathesis.

The most serious, but fortunately rare, rheumatic affection of the eye is deep scleritis. Here the circumcorneal congestion is more general, showing extensive bluish-red discoloration. It is a chronic disease, and destructive to vision by the formation of deposits in the cornea, and staphyloma of the sclera.

According to J. H. Woodward,¹⁵ rheumatic iritis occurs as an acute and as a chronic disease. The symptoms of the *acute* variety are quite intense in the pain, the photophobia, the lachrymation, the pericorneal injection, and in the tendency to plastic exudation between the iris and the anterior capsule of the lens and into the pupil. The *chronic* variety is less marked in all its symptoms. There is moderate pericorneal

injection, moderate photophobia, but marked inability to use the eyes. While the formation of an exudate occurs, as in the acute cases, it is produced more slowly. In both sets of cases cloudiness of the vitreous in consequence of irritation or inflammation of the choroid is the rule. The exudate between the iris and the capsule of the lens forms very tough adhesions, which atropine will usually fail to rupture, even though it is administered early in the case and thoroughly. False membrane in the pupil organizes into a resistant structure that is rebellious to treatment of every sort. In some severe cases exclusion or occlusion of the pupil is observed, both of which interfere with the forward current of the aqueous humor toward its exit between the iris and the margin of the cornea. Accumulation of the normal humors within the eyeball will increase the intra-ocular pressure; and a rise in the intra-ocular tension induced by such mechanical obstructions is followed by an attack of secondary glaucoma that will destroy the sight unless promptly relieved by operation.

In general, rheumatic iritis injures the eye permanently, to a greater or less degree.

Acute rheumatic optic neuritis and acute rheumatic inflammation of Tenon's capsule have been observed. Rheumatic inflammation of the extrinsic muscles of the eyeball is not uncommon. It gives rise to two sets of symptoms: (1) neuralgic pains when the eyeballs are moved, and (2) paralysis of one or more of the recti muscles, usually the external rectus.

Paralysis of an external rectus muscle is frequently observed. There is commonly a history of exposure to a draught

¹⁵ N. Y. Med. Jour., Dec. 15, 1900.

of air on the affected side. The affected side turns toward the nose, and it may not be rotated outward beyond the median vertical lines of its orbit. The patient is confused and incapacitated by the persistent diplopia, which may be suppressed only by excluding the eye from participating in the act of vision.

Etiology.—David Riesman¹⁶ says that the following conclusions regarding acute articular rheumatism seem to be warranted:—

1. Acute articular rheumatism is a specific infectious disease.

2. It is not an attenuated form of pyæmia in the sense that it is due to pyogenic organisms of reduced virulence.

3. Its true cause has not been definitely discovered, although the bacillus of Achalmé may prove to be the long-sought micro-organism.

4. A number of joint affections resemble acute articular rheumatism, just as certain pseudomembranous inflammations of the throat resemble diphtheria, and various diseases of the lung resemble typical lobar pneumonia.

5. These joint diseases should, wherever possible, be separated as rheumatoid or pyæmic affections.

6. They are best designated, according to their cause, as streptococcic, staphylococcic, gonococcic, or pneumococcic arthritis.

Arguments as to infective character of rheumatic fever are given by Arthur Newsholme¹⁷ as follows:—

1. The clinical features of the disease and its analogy with recognized specific febrile diseases confirm the view that it belongs to the same group. The mode of onset, the frequent occurrence of preliminary sore throat, and the course of the fever point in this direction. It shares its tendency to relapse with such

diseases as influenza, enteric fever, scarlet fever, and diphtheria.

2. The liability to second and later attacks does not preclude this conception of the disease. There is among diseases admittedly infective a regular scale of immunity following a first attack, from small-pox, in which it is nearly absolute, through enteric fever and scarlet fever, in which it is feeble, to diphtheria, in which immunity is evanescent, and down to erysipelas, in which one appears to predispose to further attacks. Rheumatic fever comes at this end of the scale.

3. Nor can it be said that family inheritance argues against the infective character of rheumatic fever. The special proclivity of certain families to diphtheria, enteric fever, and scarlet fever is notorious. That a special proclivity is required to develop the introduced virus of rheumatic fever may be admitted, but this does not preclude its infective character, any more than in the analogous case of erysipelas.

4. The apparent absence of infection from patient to patient is explicable on the ground that the contagium is buried in the infected joints. Direct personal infection is relatively rare in typhoid fever and cholera, in which diseases the contagium has exit from the patient. It is likely that the majority of the micro-organisms causing rheumatic fever pay for their hardihood in invading the system by securing a sepulture in its cells.

5. The fact that the joints are the common seats of the trouble favors the infective theory. As Dr. Payne puts it, the "vessels of the synovia of the joints appear to have some special proclivity

¹⁶ Jour. Amer. Med. Assoc., Dec. 8, 1900.

¹⁷ Practitioner, Jan., 1901.

to form a nidus for the wandering germs of disease."

6. The therapeutics of the disease confirm the same view. The specific power of salicin in rheumatic fever is comparable to that of quinine in malaria and of mercury in syphilis.

St. Clair Thomson¹⁸ says the present state of our knowledge on the relation of tonsillar affections to rheumatism might be summarized as follows:—

1. It is undoubted that a certain number of cases of acute rheumatism are preceded by an angina in a proportion varying from 30 to 80 per cent.

2. Both rheumatism and angina have many etiological points in common: season of year, cold, wet, fatigue, depression, vitiated air, etc.

3. The connection of angina and rheumatism, though undoubted in a number of cases, is not yet clearly established.

3. The tonsil may be the port of entry of the rheumatic virus, and this even although the naked-eye appearance of the throat gives no indication of it being affected.

5. The particular affection of the throat which is associated with rheumatism is not yet established. Apparently it is not peritonsillar abscess (quinsy).

6. Peritonsillar inflammation does not appear to be arrested by the administration of antirheumatic remedies. Many cases of parenchymatous and lacunar tonsillitis, on the contrary, are considerably benefited by the administration of salicin or salicylate of soda. That this action proved the rheumatic nature of the disease cannot yet be accepted.

7. The question requires further research in two directions: One in differentiating the various forms of angina, and determining the one which is asso-

ciated with rheumatism; the other in further research to discover the true nature of rheumatism.

W. H. Porter¹⁹ finds that the two great predisposing factors in the development of so-called gout and rheumatism are the prolonged intake of a larger amount of nutritive pabulum than the system can perfectly oxidize, or conditions that so reduce the oxygenating capacity of the animal economy that the small amount of food taken cannot be perfectly oxidized. Added to this, as the exciting and determining factors in the production of the special type encountered, are the action of the bacteria on the proteid in the alimentary canal and the formation and absorption into the system of toxic products in conjunction with the food-products absorbed. These two factors, acting together, determine the form of the suboxidation, the nature of the pathological lesions, the character of the symptoms, and the abnormal and by-products that are found in the excreta. It is largely by the latter that one is enabled to accurately differentiate between the different forms of these suboxidation conditions that afflict humanity.

When one comes to the consideration of those conditions commonly classed as acute articular rheumatism, one for the first time reaches a point in which the errors in diet, the action of bacteria in the alimentary canal, and the absorption or the development of the toxic products directly traceable to their presence act when they are introduced into the system as the direct etiological factors in determining the special type of suboxidation. In this manner one can

¹⁸ Practitioner, Jan., 1901.

¹⁹ Boston Med. and Surg. Jour., Oct. 18, 1900.

further look upon the suboxidation and toxic invasion of the system from the alimentary canal as the direct and exciting cause of the so-called gouty and rheumatic affections. The great variety of toxic products which can be produced in this manner in the alimentary canal, and that can be developed within the system, as well as those absorbed from the alimentary tract, can be made to explain the varying degrees and types of suboxidation encountered. They can also be made to explain all the different forms and types of so-called rheumatic affections that are encountered clinically. If, as seems quite probable, many of the toxic products are simply isomeric forms of the normal proteid molecule, it will be a very difficult matter to trace, isolate, and identify them. At the same time, from the data at command, it seems reasonable to assume that continued errors in diet, the action of various kinds of micro-organisms in the alimentary canal, and the production of an almost endless variety of these toxic products can easily be made to explain the many forms and types of the so-called rheumatism, even from the slightest myalgia to the most extensive destruction of the joint structures. Even the so-called neuropathic joint affections can be elucidated upon this theory of a disturbance of the nutritive functions of the animal economy, as they can in no other way. When one kind of toxic product affects the system, it, like some of the well-known drugs, will influence the chemistry of the body in its special manner, and a certain definite train of lesions and symptoms will follow. The introduction of still other kinds will produce their special results, and an almost endless variety of examples might be mentioned. In the one instance the abnormal and toxic

condition may result in a simple congestion only of the intermuscular planes, with an undue pressure upon the nerve-endings distributed to that particular part. Then we have the condition called "muscular rheumatism." In another instance the abnormal and toxic condition, by virtue of a difference in the toxic product, will implicate the central or the peripheral nervous system, and give rise to that class of cases which are known as neurotic and in which there are no very pronounced joint lesions. In still others the toxic elements will cause a more profound disturbance of the peripheral nervous mechanism, and thereby the action of the so-called trophic centres will be so profoundly disturbed that actual and pronounced destructive changes in the joint structures are produced, such as are found in Charcot's disease. The most common lesion, however, that occurs as the result of this special type of suboxidation and toxic infection of the system classed as rheumatism, is one in which the vascular areas in and around the joints become congested, and is followed by a pronounced cedematous swelling of the soft structures in and around the joints affected. In all these cases it is the lowered nutritive activities and the action of the toxic products within the system, acting either upon the central or the peripheral nervous system, that cause the disturbance in the vascular and nutritive supply to the part affected and thus give rise to the anatomical changes and symptoms.

Prognosis.—In rheumatic fever, even in the most subacute attacks, acute dilatation of the heart seems to be invariably present. Since D. B. Lees²⁹ first

²⁹ Brit. Med. Jour., Jan. 5, 1901.

observed its occurrence in 1894, he has never seen a first attack of this disease, whether in a child or in an adult, in which it was absent. When the rheumatic attack is over, the dilatation lessens and the cardiac dullness may again become of normal extent.

One may say with certainty that an acute dilatation of the heart is much more common in rheumatism, even in slight attacks, than in either diphtheria or influenza. Yet, though more common, it is far less dangerous. An extension of the cardiac dullness to two finger-breadths outside the left nipple-line is an indication of grave danger in a child affected with diphtheria, but the same amount of increased dullness in a child suffering from rheumatism implies, in itself, no immediate danger of death whatever.

The dilatation of rheumatism is so much less dangerous than that of diphtheria or of influenza, in spite of its greater frequency in considerable amount. The difference must be produced by a different effect of the several toxins upon the cardiac muscle. In diphtheria, and apparently in influenza, the muscular fibres of the left ventricle suffer greater destruction; in rheumatism, the myocardial changes are less intense, and one can only suppose that the elasticity of the ventricle is more affected. Dr. Poynton's section shows that, though in the rheumatic heart there is evidence of fatty degeneration of the cardiac muscular fibres, with interstitial foci of small cells and vascular dilatation, yet the destruction of the muscle is much less pronounced than in the diphtherial heart.

But though an increase of cardiac dullness to two finger-breadths outside the nipple-line in a case of rheumatism involves no danger of sudden death, yet

a further extension, occurring rapidly, may cause decided symptoms of collapse.

The slightest suspicion of rheumatism in a child should, therefore, lead to careful and repeated examination of the heart. Even in adults, much oftener than is generally recognized, it is fresh rheumatism that kills, breaking down compensation. It is important to notice that, at the necropsy of patients who have died from chronic rheumatic heart disease, there is usually evidence of fresh endocarditis on the cardiac valves. And clinically it may often be observed that, when a case of mitral stenosis breaks down, there is some evidence of fresh rheumatism.

Treatment.—G. A. Gibson²¹ thinks the first and most important method of treatment, with a view to obviate rheumatic implication of the heart, is to enjoin rest in the highest degree available. It is clearly impossible to insure absolute rest, however, to the pericardium, the endocardium, or the myocardium, seeing that the heart works steadily day and night; nevertheless, by securing complete bodily rest, the amount of work which the heart is compelled to perform is reduced to a minimum. From the first moment, therefore, of an attack of acute rheumatism until some days after every symptom has finally disappeared the patient should be compelled to retain a horizontal position.

Closely related to the question of rest is that of diet. While sufficiently nutritive to supply the demands of the diminished tissue-changes which occur during rest, it should be of such a nature as not to produce very stimulating effects, or to introduce into the system too much animal proteid material. It must, moreover, contain abundance of fluid. Dur-

²¹ Practitioner, Jan., 1901.

ing the earlier periods of acute rheumatism the best form of diet is accordingly composed mostly of milk. But, as time goes on, the nature of the diet may be judiciously extended by the introduction of soups, farinaceous foods, and the lighter forms of flesh.

The specific remedies for acute rheumatism will naturally be in operation from the earliest moment. There appears to be good ground for the belief that the salicyl series of drugs considerably diminish the cardiac effects of rheumatism. These drugs must be continued in full doses until every symptom has disappeared: until the pulse and temperature have become normal, and every appearance of joint affection has subsided. After that state of matters has been reached it is well still to continue the specific remedies for some time. When all the general symptoms have disappeared for a few days, absorbents may be begun. Of these, the one which seems most satisfactory is iodide of sodium. It may be continued for some weeks, giving from 10 to 15 grains three times a day. If there should be any appearance of anæmia, the iodide of sodium may be combined with iodide of iron, or, at the same time, some iron preparation may be administered with vegetable tonics. During all this period no remedy that can stimulate the heart—such as digitalis or strophanthus—should be administered, the whole aim being to maintain the heart's action at a low level. After the disappearance, however, of every symptom, general or local, the employment of the cardiac tonics may be commenced. Throughout the whole course of the disease an occasional mercurial aperient should be administered every few days.

Counter-irritation seems of the highest value. For a good many years it

has been personal custom to employ counter-irritation about the præcordia in every case of acute rheumatism, and the results have been eminently satisfactory. The method has consisted in the application of small fly-blisters every night, or every second night, over the præcordia and their neighborhood.

Richard Caton²² thinks that it is a fact that the great majority of our profession at present, while treating the rheumatic affection to the best of their ability, leave the cardiac risk to fate; they are deeply concerned if endocarditis occurs, but believe themselves powerless to prevent or influence it in any way. One or two principles should always be kept in mind in the treatment of these cases:—

1. On what theory can we reasonably hope to exert any influence on the endocardium, to prevent or assuage rheumatic inflammation, to remove the products of such inflammation, and prevent the crippling of the valve?

In the first place, the rheumatism must be stopped as rapidly as possible, and all aggravation of it by chills prevented. Therefore the patient is to be kept absolutely at rest in bed: profuse sweats usually occur, in which there is great danger of chill: therefore the patient should be clothed from head to foot in a warm flannel garment; a large stock of these vestments is kept in personal wards expressly for rheumatic cases. Salicylates are given in full dose, often with alkalies, and cholagogues in such measure as to cause free evacuations, but no diarrhoea. The diet is confined to milk and light farinaceous food; no red meat is given for a long time. The patient is kept in bed long after all

²² Brit. Med. Jour., Oct. 20, 1900.

pain and fever are gone, for one should never forget that the salicylate treatment, while removing pain and fever in twenty-four or forty-eight hours, does not remove the rheumatic entity itself after less than two or three weeks of steady administration. If the above treatment is carried out with strictness, a low percentage of cardiac complication will be the result.

Alfred Stengel²³ thinks, of the drugs used in the treatment of rheumatism, the derivatives of salicylic acid deservedly occupy the first place in professional estimation. Salicylic acid is not, as far as is known, a specific.

If, however, the salicylic-acid preparations are not specific, they at least relieve pain and suffering in a majority of cases, and thereby benefit the patient's general condition. The sodium salt is probably most frequently employed for internal use, and, excepting in rare instances when some other form is more acceptable to the stomach, proves satisfactory if the internal administration of salicylates is likely to be beneficial in any form. The Germans advise large doses, and, though these may cause toxic symptoms, they are more satisfactory than small doses spread over a longer time. If salicylic acid is likely to prove useful, it will do so in a comparatively short time. The administration of a dose of 10 grains of the sodium salt three times daily does not suffice. From 100 to 150 grains should be given in twenty-four hours for two or three days if symptoms of salicylism have not appeared; after that period the dose may be reduced one-half, and after one week's treatment the drug may often be discontinued. Persistent use of the remedy undoubtedly causes depression and other complications. The same general principles apply to the internal

use of oil of gaultheria, salicin, ammonium and strontium salicylate, etc.

The simultaneous or separate use of salicylate of methyl, applied to the skin in the form of a 10- or 20-per-cent. ointment and covered with lint and oiled silk, is extremely satisfactory.

The relief of pain secured by the internal and external use of salicylates is beneficial in several ways, but some rest may, however, be obtained in another and better way, viz.: by the use of splints or plaster casts. For several years past personal cases of acute rheumatism have been treated in this way.

In very acute inflammatory cases in the beginning the joint has been covered with lint on which salicylate-of-methyl ointment was spread and the part has been fixed with a light cast, this being removed in twenty-four or forty-eight hours. The ointment may cause irritation if it is allowed to remain too long in close apposition with the skin. In a few instances of rather subacute character it has proved useful to cut the cast so that daily dressings might be applied to the joint. As soon as the inflammation has measurably subsided it is advisable to discontinue the cast.

Personal experience with this treatment has been confined to gonorrhoeal rheumatism and polyarticular rheumatism.

In polyarticular rheumatism the fixation method has been most useful when the knee, elbow, and ankles have been the affected joints. The wrists and smaller joints can be managed with splints and in other ways quite as satisfactorily and with less trouble.

Some cases of polyarticular rheumatism prove stubborn and do not yield to treatment with salicylic acid combined

²³ Med. News, Dec. 22, 1901.

with rest. In the same cases the general condition of the patient is often unsatisfactory, and it is advised to discontinue salicylates and to resort to general tonics. In a number of cases of this sort bichloride of mercury has been employed continuously for long periods of time in doses of from $\frac{1}{36}$ to $\frac{1}{72}$ grain. As far as its application in rheumatism is concerned, it is useful only in sub-acute cases with little local inflammation and with general systemic depression. Sometimes the general condition of the patient has been favorably influenced by the administration of iron, strychnine, and codliver-oil, but none of these has seemed to exercise the beneficial effect that has followed the use of bichloride of mercury. The iodides are of undoubted value in the more chronic cases.

In A. P. Luff's²⁴ experience rheumatic fever is most successfully treated by giving a combination of a salicyl compound with an alkaline bicarbonate. For an adult 20 grains of sodium salicylate and 30 grains of potassium bicarbonate should be given every two hours until the pain is relieved and the patient is fully under the influence of the salicylate, when the same quantities should be given every four hours till the temperature has fallen to normal. Afterward 15 grains of the salicylate and 20 grains of the bicarbonate are to be given every four hours until all the joint symptoms have disappeared, and then three or four times a day until a fortnight has elapsed from the complete disappearance of joint symptoms. During the whole of this course of treatment absolute rest in bed must be enforced. If the salicylate is pushed too far, it produces deafness, noises in the ears and head, and perhaps delirium; these are indications for the reduction in the

dose, or even possibly for its withdrawal. These effects are, to a great extent, obviated by producing a free action of the bowels at the outset by means of a dose of calomel, followed by a saline purge, such as magnesium sulphate or sodium sulphate. In addition, the sodium salt of the natural salicylic acid should always, if possible, be employed, as the artificially-prepared salicylic acid is much more liable to produce toxic effects. If, by any chance, the sodium salicylate is not well tolerated, an equal quantity of salicin should be substituted for it, and given in combination with the bicarbonate. MacLagan prefers the use of salicin as not being a depressant to the nervous system, and advocates the use of 20 to 30 grains every hour till the fever and acute symptoms disappear. The heart should be carefully examined each day during the administration of the salicylate and alkali, as they tend to exert a depressing effect on it. Brandy should be given if the pulse becomes irregular or if the heart shows signs of failure.

If pain remains in any joint after the expiration of twenty-four or twenty-six hours from the commencement of treatment, then some small blisters applied above and on either side of the joint will, as a rule, rapidly remove the pain and swelling. No discomfort need arise from the blisters if, after slitting open the blister, a dressing of zinc or boric-acid ointment is applied on lint and then firmly strapped down. The discomfort after blistering is generally due to the looseness with which the dressing is applied. Another useful method for the relief of the pain in the joints is to paint tincture of iodine over and around each affected joint, which should then be

²⁴ Practitioner, Jan., 1901.

completely enveloped in a hot linseed poultice, and surrounded with plenty of cotton-wool and a flannel bandage; the entire dressing is then to be left untouched for twenty-four hours. A more recent method, and one which is of great utility, of considerably relieving the pain and inflammation of the joints is by the application of salicylate of methyl. A piece of lint saturated with about a teaspoonful of salicylate of methyl is placed over the affected joint. A piece of gutta-percha tissue, somewhat larger than the line, is put over the lint, and the overlapping edges of the under portion of the tissue are then sealed down firmly to the skin by wetting with a little chloroform, after which some wool and a bandage are applied. At the end of twelve hours the dressing is removed, when the salicylate of methyl will be found to have undergone complete absorption. The pain in the joints may also be relieved by the application of chloroform liniment.

For the general relief of pain it is occasionally advisable to administer opium in the form of Dover's powder, and phenacetin, antifebrin, and antipyrin are sometimes useful for the same purpose, but these drugs exercise no beneficial action on the disease. If cardiac failure and prostration occur, moderate quantities of brandy (2 to 3 ounces in the twenty-four hours) should be given, but in cases complicated with severe endocarditis, pericarditis, or myocarditis stimulants must be given more freely.

Treatment is to be continued not only for some time after cessation of all pyrexia, but also for some time after the tongue has become clean and the urine has returned to its normal color, reaction, and specific gravity. Care must be exercised that the administration of salicylates is very gradually left off. A

too sudden withdrawal of them, and a too sudden return from liquid to solid diet, are certainly common causes of relapses. The patient should be kept absolutely at rest in bed for at least eight weeks after the supervention of cardiac symptoms during an attack of rheumatic fever involving the walls or valves of the heart, and for six weeks if possible, dating from the commencement of the disease, when the heart is not involved.

During convalescence the cinchona preparations or quinine should be given. Iron is frequently not well borne, but it should be cautiously tried on account of the anæmia. It is best administered in the form of the scale compounds, or of Bland's pills. As convalescence progresses gradual relaxation of rest should be allowed, and a more liberal diet provided, but it is all important that the amount of exercise permitted and the dietary should be very gradually increased.

H. A. Richy²⁵ has had excellent results in the treatment of rheumatism with salophen. This drug appears in the form of colorless crystals, almost tasteless, insoluble in water, but freely soluble in alcohol. It is best administered in wafers, or simply dropped on the tongue. It passes unchanged through the stomach, and, in the intestines it separates into salicylic acid and acetyl paramidophenol, the latter having antipyretic and analgesic properties, and supplementing the action of the salicylic acid. The separation is probably very gradual, as the salicylic acid which is formed causes no untoward symptoms whatever, the action of the drug being antirheumatic, antineuralgic, and antipyretic at the same time. In severe cases of rheumatism salophen

²⁵ Buffalo Med. Jour., Feb., 1901.

may be given in doses of 15 grains every two hours for a number of days without provoking complaints of disturbed functions. At times it causes a profuse perspiration, which, however, is more beneficial than weakening.

C. E. Page²⁶ has almost wholly discarded the salicylates in rheumatism and gout of late years, and has depended very largely upon hydrotherapy and strict regulation of the diet and general regimen, and has had much

better results. Frequently during the past year a personal friend, a physician of broad experience and a very careful man, has mentioned his successes with piperazin-water, a combination of phenocoll and piperazin, which has given him great satisfaction. Within a few months piperazin-water has been personally employed with excellent results, especially in two very severe cases.

²⁶ Med. News, Oct. 13, 1900.

Cyclopædia of Current literature.

ADENOIDS, PROPHYLACTIC TREATMENT OF.

Of 2019 cases of adenoid growths treated in La Clinique des Enfants Malades, 1214 were of the respiratory type, 75 of the auricular type, and 730 of mixed form. Prophylactic treatment should be instituted in those cases which present predisposition to lymphatic enlargements, and it should consist of general tonics and local antisepsis, among the latter being instillations of oil and insufflations of medicated powders. Mentholated oil (1 to 50) is preferred; but in cases where this is not well tolerated, a combination of sterilized olive-oil with resorcin (1 part to 25 of the oil) is of value. The instillation should be made two or three times a day. Borated vaselin or mentholated vaselin may be used instead. An excellent powder consists of menthol, 10 centigrammes; boric acid and talcum, of each, 5 grammes. The nasal irrigation may be prescribed with the above treatment, but the possibility of damage by this method is noted. It is necessary to have the canal freely open and use but slight force in the douching. In using the douche the quantity should not be

more than 20 cubic centimetres, the fluid preferably a boric-acid solution. When the adenoids are actually present, medical treatment should consist of an application of iodine with glycerin, 1 to 50; but this is merely palliative, and surgical measures are the only means to effect a cure. Cuvillier (*Annales de Méd. et Chir. Infantiles*, Jan. 1, 1901).

ALCOHOLIC NEURITIS, THE FACE AND PUPIL IN.

Before the occurrence of the loss of knee-jerk and extreme hyperæsthesia of the skin in advanced cases of alcoholic neuritis, and while the knee-jerk may be only sluggish or may even be unaltered, a peculiar expression of the face is sometimes noticeable. The face becomes mask-like and expressionless, the lips appear to move apart from the cheeks, but, what is sometimes still more extraordinary, the lips themselves may seem very mobile. The eyebrows and eyes may move in accordance with the lips, but a fixed and unexpressionless band stretches across the nose and cheeks between the eyes and lips, the skin upon the cheeks remaining motionless and unwrinkled, while the lips,

eyebrows, and forehead may be moving freely.

The pupil reflex is just the converse of the Argyll-Robertson phenomenon. In a number of cases of alcoholic neuritis it has been noticed that the reflex of the pupil to light is rapid and extensive, whereas the contraction of the pupil on accommodation to a near object is slight and sluggish or entirely wanting. T. Lauder Brunton (Brit. Med. Jour., Dec. 1, 1900).

BLOODLESS WORK, TECHNIQUE OF.

The present method in general use consists in stripping—milking—by the fingers, for some minutes, the blood out of the elevated limb, the operator massaging along the course of the chief veins. Then, at the desired point, is applied the constriction, which is either an ordinary stout rubber bandage or a very large rubber tube. In the former case this is ended by slipping what is left of the roll—after encircling the limb tightly a few times—beneath the final turn, the roll lying preferably over the chief vessels. Should a rubber tube be the choice, the larger in calibre, the better; a tube of pure black gum an inch and a half in diameter and long enough to encircle the thigh twice or thrice when unstretched is to be preferred. This is fastened very simply. One ties together the crossed ends, while still tense, with a short piece of wet bandage, using a single loop-knot. Tying a hard knot is to be avoided. To remove, one is to draw on the tube-ends first, thus making them once more smaller in calibre; whereupon the wet bandage loop can be untied with ease.

In consequence of the simple “milking” a small amount of blood remains in every vessel. These are not paralyzed, as is the case where the Esmarch

BLOODLESS WORK, TECHNIQUE OF.

bandage has been used; hence there is small tendency to oozing in the wound; and, when the operator has any trouble in finding all the vessels, he strips sharply *down* the chief artery,—the popliteal, for instance,—whereupon every unsecured artery and arteriole will spurt, and be located with ease.

Should the operation be one above the foot or above the hand, many operators think it best to tighten the constricting rubber bandage or tube upon the proximal limb rather than the distal, believing that, because the two bones in the latter case protect the arteries between them, a greater degree of constriction is needed than if the thigh or the upper arm be chosen; and hence the leg and the forearm should be avoided for this purpose. But upon the two proximal limbs there is a choice of situations. The upper third of the thigh is so great in circumference as not to be desirable for constriction unless under compulsion, and in the lower third the external popliteal nerve lies near enough to the surface, when approaching the outer hamstring, to have occasionally been paralyzed from undue pressure. As to the arm, constriction at its middle third may paralyze the musculo-spiral nerve where it lies in its groove against the humerus. Hence one should *select* the middle of the thigh and *avoid* the middle of the arm.

Bloodless work is not wholly limited to the limbs. The scalp may, for instance, be included in this field by the use of a tube carried tightly about the head. This rests in front in the depression between the frontal eminences and the superciliary ridges; at the sides, runs just above the ears; and behind is fastened just below theinion.

Similarly, in amputation or excision of tumors of the female breast, for

reasons other than malignancy, the work may be made almost bloodless by cording the breast at the body—first passing through its base crosswise a pair of long mattress needles, to insure against the tube slipping off.

About the bladder, perineum, and genitals, both male and female, Trendelenburg's posture secures by gravity a degree of anæmia which constitutes a great safeguard, in addition to other advantage resulting from this position. R. H. M. Dawbarn (*Jour. Amer. Med. Assoc.*, Feb. 9, 1901).

CARBUNCLE, TREATMENT OF, WITH LIQUID AIR.

From personal experience in the local treatment of carbuncle with liquid air, it is shown that this is by far the best form of treatment. It is less painful to the patient than any other form of treatment. Only one application is necessary; within twelve hours of the first application the pain entirely ceases, not to return again, and at the end of a few days only a small ulcer is left,—representing the tissue between the openings of the carbuncle,—which readily repairs with usual dressings. In the treatment of the carbuncle the spray is used, first projecting it into the openings and using the air quite freely, then quite thoroughly freezing the external surface, which must be well cleansed of discharge resulting from sending air inside of the carbuncle before freezing. After freezing, the carbuncle should be dressed with a dry, absorbent dressing: so that the discharge, which will be abundant and accompanied with considerable bleeding, can be readily absorbed. The reaction from freezing takes place in about twenty minutes, and it is to this extreme hyperæmia that the success of liquid air in the

treatment of this affection is attributed more particularly. A. Campbell White (*Jour. Amer. Med. Assoc.*, Feb. 16, 1901).

CARCINOMA OF THE CÆCUM, DIAGNOSIS OF.

The symptoms of carcinoma of the cæcum have their importance because, by reason of the small number of cases that have been diagnosticated as such during life and have been reported, little attention has been given them in the classical works on general or special surgery. The commencement of the disease is usually remarkable by its latency, but always comes to an end as soon as the growth has developed sufficiently to be made out by palpation, and at this time the period of full development has been reached. The symptoms which first draw the physician's attention to the cæcum do not always follow in the same order; but in the order of frequency of their apparition they may be classed as follows: (1) pain; (2) alternating diarrhoea and constipation; (3) loss of flesh; (4) dyspeptic disturbances; (5) intestinal hamorrhage. Occasionally the functional symptoms are absent, and only those are met with which occur when it has arrived at its full development, and thus one finds reported cases in which the tumor in the right iliac region was detected before it had given rise to any other symptom, while in one case the affection made its presence first known by the formation of a faecal fistula.

The physical symptoms are observed when the carcinoma of the cæcum has attained its full development, and they characterize the disease. By far the most important is the appearance of a tumor in the right iliac fossa. In the early stages it is movable under the ab-

dominal wall, and also over the deeper structures. The neoplasm, which in the beginning is limited to the intestine, will finally invade the pericæcal cellular tissue and throw out narrow adhesions between the diseased structures and the iliac fossa, or the neoplasm may become adherent to the abdominal wall. Later on the lymphatic glands become involved, and their number and size vary very greatly in different cases. After the lymphatics have become greatly involved a large tumor may be felt which may project at a point quite distant from the primary neoplasm, as, for example, at the umbilicus or in the epigastric region. The tumor will now be found to be very adherent, and it may happen that, from its size, it compresses the iliac vessels; so that an œdema of the right lower limb will arise. C. G. Cumston (*Med. News*, Feb. 16, 1901).

COFFEE, ITS FREQUENT DELETERIOUS EFFECTS UPON THE NERVOUS SYSTEM.

The habitual daily indulgence of coffee, even in moderate quantity, by those who are oversensitive to its action, invariably leads to persistent functional disorder of the nervous system, as well as to disturbance of digestion, which rapidly subsides when it is discontinued. No doubt the latter is often occasioned by the addition of too much milk and sugar, which favors the process of fermentation. Some physicians believe that coffee without the customary milk and sugar never disturbs the gastric function.

Many or all neurotic individuals seem to be more or less susceptible to the influence of coffee, particularly in regard to its effects on the nervous system, and it usually aggravates any existing hyperæmia in the cerebral circulation. Quite

a number of persons have been personally seen in whom coffee produces paroxysmal sneezing and coryza, and others in whom pruritus, either local or general, becomes a pronounced and troublesome symptom.

In several patients it has been possible to trace to the daily use of coffee the otherwise unexplained cause of vertigo, either through its direct action on the vascular system or indirectly through disturbance of gastric digestion.

The wakefulness and flow of thought produced by coffee are rather commonplace knowledge. A large number of nervous literary men and women, and businessmen under high pressure, continually resort to the coffee-cup for cerebral stimulation and a renewal of their flagging energy. The abuse of coffee in this manner insidiously, if not rapidly, leads to various degrees of exhaustion of the cerebro-spinal centres.

The nervous system of children is peculiarly susceptible to the effects of coffee, and its use should never be permitted. It produces a certain intellectual precocity through overstimulation of the cerebral cortex, as well as other functional disturbances.

There is a distinct type of cases of rather frequent occurrence, particularly among the poorer class of people, but by no means strictly limited to them, which manifests itself in a form of functional nervous disorder, to which the elastic term "neurasthenia" in its broadest significance may be aptly applied, and which is due to the excessive use of coffee. After carefully investigating and treating several hundred of these patients, attention is called to a common group of symptoms, most frequently observed in those addicted to the excessive use of coffee, constituting

a condition that should best be designated as the "coffee habit," or "chronic coffeeism."

The general health becomes much impaired, and the functional activity of every organ may be affected. The patients usually complain of the following symptoms, which are more or less pronounced and in varying combination: General headache and "nervousness," apprehension in regard to some unknown impending trouble, mental depression and irritability, insomnia or restless sleep, "bad dreams," sudden "starting" in sleep and awaking in profuse perspiration, occasional or frequent vertigo; general tremulousness and diminished muscular power, præcordial oppression, cardiac palpitation, loss of appetite, frequent eructation of gas, and constipation. The symptom-complex most commonly noted is: General nervousness, tremor, vertigo, restless sleep, cardiac palpitation, eructation of gas, and constipation. On examination is usually found a coated and tremulous tongue; tremor in the eyelids while standing with closed eyes; in some, the pupils are slightly dilated, but react quickly to light; tremor in both outstretched hands; rapid pulse, of low tension and frequently irregular, ranging from 90 to 130; exaggerated reflexes, and more or less increased reflex irritability. Tachycardia or bradycardia may also be present.

This entire series of neurasthenic symptoms may also result from other causes, such as the excessive use of alcohol, tea, or cocoa, or from a combination of several factors. As a general rule, it is most frequently mistaken for chronic alcoholic toxæmia. In some, symptoms of chronic poisoning may result from three or four cupsful daily. Such cases do not take suitable or suffi-

cient food, and, as coffee possesses but little nutritive value, they ultimately show unmistakable evidence of malnutrition in addition to their other symptoms. W. M. Leszynsky (Med. Record, Jan. 12, 1901).

CORPOREAL SPECIFIC GRAVITY AS A FACTOR IN PHYSICAL DIAGNOSIS.

The information furnished by the body-density of an individual will assist to disclose the following points:—

First: Body-soundness. A volume weight in the healthy adult male below 1.063 or above 1.073 denotes unsoundness of the organism. The lesser density is indicative of a general texture satiation with water or of the preponderance of adiposis, or of both conditions together. The higher degree of density reveals a disturbed metabolism, a general atrophic or sclerotic state, or premature senility.

Second: Body-immunity. A volume weight below the minimum degree of normality signifies that the system is predisposed to infectious diseases, and one above the maximum of normality announces its susceptibility to or the presence of eliminative disorders.

Third: Qualifications as to physical work. A body whose tissues are satiated with water or infiltrated with abnormal quantities of fatty material cannot, during a certain period, perform that amount of work which can be accomplished by another organism of the same age and absolute body-weight, but of normal specific gravity: the individual with abnormal high volume weight also lacks the strength and endurance of one with a lesser, but normal, density.

Fourth: Probable duration of life. All given conditions being alike, a person of normal volume weight will attain

a greater age than one with an excessively low or high density. Individuals, therefore, whose specific gravity is abnormal, should be considered bad risks by life-assurance examiners.

Special pathological processes, in as far as they are the originators of abnormal body-densities, may often be recognized by the condition of the latter.

In phthisis pulmonum the blood-density may not stand in exactly the same relation to the body-density as in the healthy organism,—that is, the discrepancy between the degrees of the specific gravities of both may be either above or below that in the normal body; however, it seems to be beyond question that there always exists a direct relation between the density of blood and that of the body. The blood-density frequently, but not in all instances, varies during the different stages of the tuberculous affection. Heinrich Stern (Med. Record, Feb. 9, 1901).

DIGITOXIN.

As a diuretic, digitoxin is superior to digitalin, since it actually dilates the renal vessels, while stimulating the heart. Furthermore, its action is prompter and more certain than that of digitalin. It manifests its effects oftentimes within twelve hours, and is less liable to cumulative action than digitalin. Masius has used as much as $\frac{1}{40}$ grain a day. After discontinuing the use of the drug the influence of digitoxin is said to persist, sometimes, for eight to ten days. To avoid digestive disturbance, Wenzel employed it chiefly by enema, giving about $\frac{1}{80}$ grain in 10 minims of alcohol and 4 ounces of water. The action upon the heart, as observed in these experiments, was quite pronounced; at first, three rectal injections

were given daily (previous thorough cleansing of the bowel being presupposed); afterward, only two injections were used; and, finally, only one was found necessary, in order to maintain the first effect produced. In personal experience digitoxin has been given in a series of cases,—of late, chiefly hypodermically, but also by the mouth (*always after meals*). It was the exception to see any digestive disturbance when $\frac{1}{500}$ grain or less of digitoxin was being given, three times daily. In no case did an abscess ever result from the hypodermic syringe.

Digitoxin has been especially recommended in chronic myocarditis and in cases of ruptured compensation.

A solution of digitoxin is liable to precipitate on coming in contact with the secretions of the body. To avoid this, and yet not use too much alcohol in the pharmaceutical preparation of the solution, it has been recommended to add a little chloroform to the solution. The following solution has, after experimentation, been found to be stable, and will not precipitate upon contact with blood-serum, water, or sodium-chloride solution:—

R Digitoxin, $\frac{1}{250}$ grain.

Chloroform, 1 $\frac{1}{2}$ minims.

Alcohol, at 90 per cent., 23 minims.

Water, sufficient to make $\frac{1}{2}$ ounce.—M.

L. L. Solomon (N. Y. Med. Jour., Feb. 9, 1901).

DIPHTHERIA.

Treatment.—A clinical study of 2093 cases of diphtheria personally treated at the Boston City Hospital shows that in antitoxin we have a remedy which possesses the power of perfectly neutraliz-

ing the toxin, and the recovery of the patient depends almost entirely on whether or not this remedy is administered early enough and in sufficient quantity. The number of the bacilli of diphtheria infecting a patient cannot be determined, and, moreover, the virulence of these bacilli varies within wide limits. The susceptibility of the individual is also an unknown quantity. It is, therefore, impossible to determine, *a priori*, the amount of antitoxin required in a given case. Here, as in many conditions, one has to rely on clinical observation. The amount and character of the diphtheritic membrane, however, the quality and frequency of the pulse, the expression of the face and eyes, and the general appearance of the patient aid in forming an opinion. The amount of diphtheritic membrane alone is an imperfect guide; and it is often necessary to continue giving antitoxin after this has disappeared, for evidences of toxæmia sometimes outlast the false membrane. Clinical experience teaches, however, that the effects of antitoxin are only salutary, and there is no danger in giving too much. Clinical experience also teaches that, the sooner the total amount of antitoxin required can be given, the better. At the hospital, therefore, 4000-unit doses are given and repeated every four hours as long as may be necessary. In some exceptionally severe and late cases 4000 units have been given every two hours and in some cases 8000 units every four hours. This method does not allow time for marked change in the false membrane between the doses; but the appearance of the membrane is but one of the many signs and symptoms to be considered. Some patients have thus received large quantities of antitoxin, and some moribund

and apparently hopeless cases have been saved from death. Some of the recoveries that have attended this mode of treatment have been so wonderful that only those who have seen them can appreciate them. The logical conclusions deducible from the statistics gathered from a study of this series of cases and from comparison with other statistics of large numbers of cases studied before antitoxin was used cannot be other than favorable to this mode of treatment. The death-rate from diphtheria in the Boston City Hospital for four years and one month previous to February 1, 1894, and for the last series of cases treated without antitoxin, was 45.3 per cent. The death-rate for this series of cases, comprising those treated in the same institution during an entire year, is 12.23 per cent.; that is, the death-rate has been lowered 33 per cent. Not all of the patients of this series of 1962 cases received large amounts of antitoxin. The dose was not repeated unless necessary; and there were 321 patients who received only one dose of 4000 units or less during their illness.

Alcoholic stimulation in diphtheria should be used freely and frequently, and sufficiently early in the disease to ward off, if possible, the attacks of extreme weakness and collapse that are not uncommon in those patients whose tissues are undergoing degenerative changes. A rapid pulse is not a contraindication, and, generally speaking, the amount of toxæmia or evidence of degenerative changes are better guides in its use than the pulse.

Considering the fact that the heart-muscle becomes flabby and shows more or less evidence of fatty degeneration early in the disease, the use of digitalis is indicated only in exceptional cases.

Hot packs have been of especial value

in those cases showing diminished urinary secretion, and drachm doses of a saturated solution of magnesium sulphate given every hour has proved of value as a diuretic in children.

All intubed patients are fed by means of an œsophageal tube; and it has been found better to feed them in a partially-sitting posture, supported by the nurse.

In many cases, both of adults and of children, in which vomiting has been an annoying and persistent source of danger, rectal feedings have been of great assistance. The rectum of children is surprisingly tolerant of such treatment, provided only that the quantity given is not too large and care is exercised in its administration, and also that the feedings are given only once in six hours.

The physician must constantly bear in mind the character and the extent of the degenerative changes possible in this disease, and exercise the utmost care and caution in allowing his patients to sit up and walk about. The heart is usually a reliable guide in this, and if it is not affected by a short time out of bed the time up each day may be gradually lengthened. The custom of allowing patients to sit quietly in a chair fifteen minutes on the first day out of bed is followed at the hospital, and they are not allowed to walk to and from the chair. F. G. Burrows (*Amer. Jour. Med. Sci.*, Feb., 1901).

ENEMAS.

The position has much to do with the comfort of the patient and more so with the effect of the enema. The following positions are most used:—

Sims's, or left lateral, in any cases where the patient can be placed without discomfort or danger of tearing stitches, as in a recent laparotomy.

Dorsal in any case where patient cannot be turned on the side, and in giving rectal irrigations.

Right lateral when complete laceration of perineum exists.

Genu-pectoral, or knee-chest, position when giving rectal irrigations or when giving medicated enemas, as in cases of dysentery, etc.

Trendelenburg's position immediately after an operation when stimulating or saline enemas are given, especially if the sphincter-muscles are relaxed.

An evacuant enema consists of either pure water to which is added a little salt or soap-suds. This enema should not be very large, 1 to 2 pints being a sufficient amount. It can be given either high or low, but the latter is most commonly used.

A purgative enema is given when an increased peristaltic action is desired, and consists generally of some irritating medicine mixed with water, salt solution, or soap-suds. The following prescriptions have proved very efficient:—

R Turpentine, $\frac{1}{2}$ ounce.
Mag. sulph., 1 ounce.
Castor-oil, 1 ounce.
Warm water, 1 pint.

R Ox-gall, 15 grains.
Turpentine, $\frac{1}{2}$ ounce.
Glycerin, 1 ounce.
Castor-oil, 1 ounce.
Soap-suds, 1 pint.

The ox-gall should first be dissolved in a little warm water.

In cases of severe constipation, when the faeces are clogged in the lower bowels, it will often be necessary to remove them with the fingers, then inject 5 to 8 ounces of warm olive-oil, which should be retained for one hour, followed by an evacuant enema. In cases of operation upon the perineum, rectum,

etc., the bowels should never be allowed to be moved the first time after the operation without an oil enema; this will prevent much pain and irritation to parts surrounding the stitches.

An antispasmodic enema is given in cases of colic either in adult or child. This enema gives great relief to patient in cases of tympanites. It is best given in Sims's position. If the flatulence is caused by fermented food, a purgative should be given by mouth, and an enema consisting of:—

R Mag. sulph., 1 ounce;
Turpentine, $\frac{1}{2}$ ounce;
Hot water, $\frac{1}{2}$ ounce,

given high will often give great relief. Flatulence that occurs in pregnancy is relieved by injecting through a hard-rubber syringe the following:—

R Yolk of an egg;
Turpentine, $\frac{1}{2}$ ounce,

well beaten together.

An astringent enema is given to reduce chronic inflammation; to check diarrhoea and hamorrhages from the bowels. It consists generally of starch and opium and some astringent:—

R Tannic acid, 10 grains;
Tinct. opii, 15 grains;
Mucilage of starch, 2 ounces,

injected cold after each defecation.

In cases of bleeding and irritating ulcers in the rectum:—

R Nitrate of silver, 5 grains;
Water, 1 ounce,

is injected cold once or twice, and is very effectual.

A stimulating enema is given in cases of low vitality. A stimulating enema should always contain some salt, should be hot, and given high in large or small quantities, depending on the circum-

stances. It consists of some kind of alcoholic fluid, such as whisky, brandy, or pure alcohol. The pure alcohol should only be given one-half dose.

R Whisky or brandy, $\frac{1}{2}$ to 2 ounces.
Normal salt sol., $\frac{1}{2}$ to 4 pints.

Strong coffee with whisky is a very good stimulating enema in cases of morphine poisoning, and is given in quantities, as $\frac{1}{2}$ pint to 2 ounces.

A nutrient enema is given to nourish the system through the bowels when nothing can be retained on the stomach. All food given through the rectum should be predigested or peptonized, should contain salt, and be warm. The quantity should be small, but repeated often. The bowels should first be well cleansed, then quieted, if necessary, by aid of tinct. opii, 15 minims, or cocaine, $\frac{1}{4}$ grain, in solution injected through a small glass syringe. The enema is always given high, and between each enema the bowels should be well flushed with normal salt solution to remove all irritating remains. A nutrient enema is best given through a funnel and tube, but a Davidson syringe can be used if the nurse is gentle and careful. The patient should be placed in either Sims's, dorsal, or Trendelenburg's position, according to circumstances.

To peptonize milk, chicken-broth or soup, beef-tea, oyster-broth or soup, or clam-broth or soup, one may use 15 grains of bicarbonate of soda and 5 grains of pancreatin to each pint of fluid used. The powder is dissolved in a little water; then the fluid, which should be tepid, is added, and the vessel containing this preparation is placed in a larger vessel containing water at a temperature of 90° F. The water must reach the margin of the food to be peptonized, which should remain in the

water for exactly twenty minutes. If it remains longer or at a higher temperature it curdles and is unfit for use. After the food is peptonized it should be placed on ice and reheated when needed. Liebig's beef-extract and Wyeth's beef-juice are very good agents, and do not need to be peptonized.

The following prescriptions are valuable:—

- R** Either
 Milk,
 Chicken-broth,
 Beef-tea,
 Oyster-broth,
 Clam-broth, 8 ounces.
- R** Liebig's beef-extract, 1 ounce.
 Hot water, 4 ounces.
 Whisky, $\frac{1}{2}$ ounce.
 Sodium chloride, 15 grains.
- R** Wyeth's beef-juice, 1 ounce.
 Tepid water, 1 ounce.

This nourishment should be repeated every three or four hours as needed.

A forced enema is given in cases of obstruction of the bowels and small tumors of the bowels in children. It consists of large quantities of plain tepid water or oxygen. The rectum should be emptied, then plugged with a rubber cork, through which the nozzle of the syringe is introduced, and the anus should be strongly supported to prevent expulsion of the enema. This treatment is very painful, but is sometimes very successfully administered. Hanna Kindbom (Trained Nurse and Hospital Review, Jan., 1901).

ENTEROPTOSIS.

Diagnosis. — Both enteroptosis and movable kidney seem to be much more frequent among women. In most instances morbid manifestations are en-

ENTEROPTOSIS.

countered. The patient often complains of a faint feeling or of weakness after rising. A feeling of weight is occasionally experienced in the lower portion of the abdominal cavity, and a dragging sensation in the epigastrium. Moreover, disease of the digestive tract complicating enteroptosis proves unusually rebellious to the ordinary treatment. Cases of enteroptosis lasting for a long period are apt to lead to anæmia. As a rule, these patients are thin and appear younger than they really are. Palpation is extremely easy of performance, there being, as a rule, no rigidity of the muscles. In the standing position the epigastric region appears depressed, while the lower part of the abdomen is bulging. The stomach occupies an abnormally-low position, as can be easily demonstrated by the splashing sound. On tapping on the left side of the abdomen below the ribs, the stomach being partly filled, a splashing sound will be elicited, and its situation indicates the position of the stomach. The transverse colon, the cæcum, the descending colon, and the sigmoid flexure can often be palpated. In these cases the right kidney will often be found movable. Max Einhorn (Med. Record, Jan. 5, 1901).

Treatment. — Enteroptosis can be cured in many instances. Personal plan of treatment is to strap the stomach with strips of adhesive plaster. Adhesive plaster is preferred to the bandage in these cases because the patients are thin, and it is difficult to fit a bandage and keep it snugly applied. Irritation of the skin can be overcome by the application of Unna's zinc plaster before putting on the adhesive plaster. Nervous dyspepsia and enteroptosis are thought to be closely allied. It is re-

markable how quickly the nervous dyspepsia can be relieved by treatment directed to the cure of the enteroptosis. A. Rose (Med. Record, Jan. 5, 1901).

HÆMORRHOIDS.

Diagnosis. — When a patient suffers from any protrusion around the rectum, or swelling, the physician should know something more about it than simply that there is a protrusion. One should know when this protrusion appears, whether it is always present, or whether it only occurs at stool; whether it is brought on by long, hard straining or by a very slight exertion. We should also know whether this protrusion disappears spontaneously or whether the patient has to restore it; and, if so, whether such restoration is easy or difficult. The nature of the protrusion, whether hard or soft, smooth and spherical, or nodular and in lobes, is important to know. If at the time of examination the protrusion is down, one should observe the direction of the rugæ, whether circular or running up and down; also the condition of the mucous membrane of the parts, whether it is healthy, excoriated, or ulcerated; also whether such protrusion is regular or irregular, and whether it is attached by sessile or peduncular base. After having made all these inquiries, the physician, if he is familiar with diseases of the rectum, will generally have a pretty clear conception of what he is likely to find upon examination. No diagnosis of a rectal condition is ever complete or reliable until both digital and ocular examinations have verified the opinion gained from the subjective history and questioning.

In preparing a patient for a first rectal examination, personally an enema is

not given until after the finger and speculum have been introduced to learn the habitual condition of the parts. Having learned this, then a rectal irrigation, or salt-and-soap-sud enema should be given the patient, and the bowels moved. This will be advantageous for two purposes: first, the cleansing of the parts, and, secondly, the bringing down of any protrusion which ordinarily occurs at the time of the patient's going to stool. The commode or toilet to which the patient retires should be in close proximity to the doctor's office, in order that he can see such protrusion before it retires spontaneously; and, if there be a bleeding protrusion, to avoid any unusual delay in examination and unnecessary soiling of the patient's clothes. J. P. Tuttle (International Jour. of Surg., Jan., 1901).

HAIR, CARE OF.

Preserving the natural polish of the hair can only be done by judicious attention. Unwashed, effete epidermic particles in most cases accumulate around the roots of the hairs, and encourage, if they do not directly cause, diseased conditions. These cannot be removed by brushing, which, if at all vigorously carried out, like the small-tooth comb, rakes the scalp and eventually renders the plight worse than before. If a well-made fluid superfatted soap, in which the alkali is potash, and not soda, be sprinkled over the head, then sufficient warm soft water be added from time to time, first to produce a lather, subsequently to wash out this lather, and with it the incorporated dust, the hair, when dried, will be found to be left soft and flexible, while the scalp has no sensation of tenseness. Or,

in place of the soap, one may have recourse to an infusion of quillaia-bark in warm water. This contains saponin, which emulsionizes the fatty matter and floats off the dirt. Another safe and excellent shampoo is yolk of egg beaten up; this in like manner combines with the fat and renders it removable. The proper use of the hair-brush is to polish and dress the hair, not to remove scurf. Therefore, a brush with long and fairly widely set bristles should be used, not what is termed a hard and penetrating one. A comb with wide-set teeth should be used to arrange it, and in women it ought not to be dragged when put up. In many cases it is advisable to employ some artificial lubricant; fresh almond-oil is that which has seemed to come nearest the natural unguent. Almond-oil is improved by the addition of a little oil of eucalyptus, globulus, and resorcin. This oil is applicable to the beard and moustache as well, and restrains the propensity to become gray. The best way to use it is to smear a little on the teeth of a dressing-comb, and thus to convey it to the hair in passing it through. W. Allan Jamieson (*Edinburgh Med. Jour.*, Dec., 1900).

INTESTINAL OBSTRUCTION.

Treatment.—Among medical measures which may be instituted as precursory to surgical intervention in the event of failure, high rectal enemata head the list. These should always be given with the patient in the knee-chest position, but, if the patient is too weak to assume this posture, a left or right lateral semiprone position will answer. The enemata should be carried by means of a long, flexible rectal tube as high up as one can succeed in introducing it;

plain warm water, or water and glycerin, or water to which a modicum of turpentine has been added, the turpentine being emulsified by shaking up with an egg, may be used. If three or four enemata do not yield results, it is unwise to delay coeliotomy. It is risky to administer purgatives.

Opiates should be withheld as part of the medical treatment; they should only be given during the time consumed in preparing for operation, to obtund the pain. In the event of failure with the enemata, all observers are agreed that early operation offers the only salvation for the patient. Murphy operates early; McArdle advocates early operation; Broca operates after twenty-four hours; Naumyn also urges early operation, and holds that the best results are obtained in the first three days. L. A. Hering (*N. Y. Med. Jour.*, Feb. 9, 1901).

IODOL IN TUBERCULOSIS OF THE LUNG.

Iodol, which contains 88 per cent. of iodine, or more than three times as much as europen and more than twice as much as iodoform, has been used for the last two years in all personal cases of consumption at the Rush Hospital with marked improvement in the various symptoms. This was only temporary in the advanced cases, but in the incipient cases the improvement continued as long as they were under observation. The improvement covered general conditions: strength, weight, cough, expectoration, dyspnoea, appetite and even physical signs, although the last were not as much influenced as some of the advocates of this treatment claim. It may be that the weight and strength improved, because digestion was not in-

terfered with, as it is by nauseous and irritating drugs.

To take up the improved symptoms in detail, in some of the incipient cases the cough and expectoration disappeared entirely, while in others they diminished gradually and much of the discomfort therefrom disappeared. The greatest change in the physical signs was a diminution in intensity in the abnormal breathing sounds. Râles that were heard over the affected area seemed to be markedly diminished and in some cases to disappear altogether. The other physical signs were not altered.

Of the last 15 cases admitted to the hospital, the greatest increase in weight was 20 $\frac{1}{4}$ pounds, and the least 1 pound; even in those who died the weight had increased. The cough had entirely disappeared in 4 and was markedly diminished in 3; in 4 there was no increase in this symptom, and in the remaining 4 the cough gradually became worse. The expectoration was diminished in 4 cases, in 5 there was no change, and in the remaining 6 it gradually increased in quantity. The dyspnœa entirely disappeared in 2, and became gradually less in 5, while in the remaining 8 it did not abate. Strength and appetite even in the advanced cases improved for a time. There was no marked change in the temperature, except in the incipient cases where there was a tendency to fall.

All the cases were hospital ones. In addition to the iodol inunctions, patients received strychnine, $\frac{1}{25}$ grain, three times a day, with good nourishing food and proper out-door exercise. The inunctions contained 20 grains to the ounce of olive-oil. The quantity rubbed in was a drachm three times a day, increased to $\frac{1}{2}$ ounce gradually,—say, by about a drachm a week. The rubbing is

done by the patient himself, and requires about ten minutes to rub in the whole quantity. T. M. Tyson (*Jour. of Tuberculosis*, Jan., 1901).

MEMBRANOUS COLITIS.

Treatment.—A positive diagnosis of enteroptosis, as a cause of membranous colitis, would afford a reasonable ground for attempting to remedy the prolapse by surgical means. A sagging colon cannot be corrected in any other manner. Medicinal treatment is of no avail. Dilatation of the stomach with accompanying prolapse of the colon, has already been treated successfully surgically. If dyspepsia of the gastro-intestinal tract is the cause of the disease, it should be appropriately treated. If the disease is supposed to be of bacterial origin, then intestinal antiseptic treatment by colonic flushing, and the administration by the mouth of intestinal antiseptics, with the requisite hygienic and dietetic treatment, are indicated.

Occasionally it is necessary in severe cases to restrict the diet closely, but in the majority of cases the diet should be ample, varied, and digestible. These patients require nourishing diet, and the food should be well cooked and daintily served. In all cases it is well to exclude rich soups, gravies, made dishes, excessive sweets, fruits and vegetables with indigestible seeds or fibres, and greasy meats, as well as pastries. Claret or the wines which have tannin in them may be served with the meals.

Of first importance is the protection of the intestines by wearing the entire year a flannel abdominal bandage. Every means which increases bodily vigor should be employed. The patient should take proper exercise in the open air and sunshine; physical fatigue,

while easily induced, does not have so deleterious an influence as worry and mental fatigue. Change of scene induces rest of mind, and a sojourn at some of the sulpho-saline mineral springs often inaugurates a period of improvement. Freedom from care is an essential element of treatment.

Renal insufficiency is a frequent accompaniment of this disease, doubtless owing to reflex irritation and the fact that there is a great deal of elimination of water through the intestinal tract. When the kidneys fail to eliminate properly, the patients suffer more from pain, peripheral neuralgias or neuritides, headaches, lassitude, nausea, foul breath, etc. This condition calls for the employment of saline diuretics, such as Semmola's mixture, mild salt waters, alkaline waters, chalybeate waters, and an occasional hot-air bath.

When rectal irritation is present, the rectum should be washed out with hot water: that is, a temperature of 100° F. In these flushings the soft-rubber rectal tube should be used. When the patient is suffering from the expulsion of the membranes, the rectal flushings give great relief. Except in severe cases, high hot colonic flushings with 1-per-cent. solutions of boric acid and sodium chloride are very beneficial. In the secondary forms of the disease the membranes seldom appear in the stools, but the colonic flushings are just as beneficial as in the forms where the membranes are expelled. Letcheff recommends hot solutions of 1 to 1000 or 2000 of nitrate of silver.

A solution of methylene-blue, 1 grain to a quart of water, may be used with great benefit by rectal injection, the patient reclining and the injection given high.

The medicinal treatment of the dis-

PROSTATE, ENLARGEMENT OF THE.

ease consists in the avoidance of opiates, astringents, and irritating drugs, and the intelligent employment of the so-called intestinal antiseptics. When defective digestion is present, the administration of partially-digested nutrients, or the administration of the digestive ferments or hydrochloric acid, as indicated, and in neurotics the administration of nervines.

The antiseptics which have given the best results have been bismuth salicylate, salol, betanaphthol, thymol, benzoic acid, menthol, guaiacol-carbonate, and creasote. J. A. Robinson (*Medicine*, Jan., 1901).

ORGANOTHERAPY IN GYNÆCOLOGY.

Ovarian extract has been personally prescribed for three years for three classes of cases: 1. In amenorrhœa and dysmenorrhœa. 2. For symptoms following the removal of the uterine appendages. 3. For disturbances due to the natural menopause. Most cases are disappointing, but an occasional success incites to renewed use. The best results are noticed in the second class of cases, the congestive and nervous symptoms being ameliorated in some instances. No definite and exact reliance can be placed on the drug. Wilmer Krusen (*Phila. Med. Jour.*, Feb. 16, 1901).

PROSTATE, ENLARGEMENT OF THE.

Diagnosis. — With the presence of symptoms that point to the probable existence of enlargement of the prostate, one should proceed to verify the diagnosis by a physical examination of the urethra and rectum.

The patient is first directed to pass all the urine he can and the strength and general character of the stream is

noted. He is then placed on his back on a couch; the glans and foreskin are thoroughly washed with an antiseptic, and a catheter, 13 or 14 of the French scale (7 or 8 English), is slowly and carefully introduced. The choice of catheters will lie between a Jaques vulcanized rubber, a very pliant cylindrical gum elastic, or a French *coudée*. This latter, is, as a rule, the most easily introduced. It should be held almost horizontally at first, with the curved point turned downward, and gradually elevated into the perpendicular position as the instrument passes onward through the urethra and into the bladder. It should be noted if there be any obstruction at the neck of the bladder and if the end of the catheter rides over it, which would probably indicate an enlarged middle lobe. The quantity of urine drawn off, if any, indicates the amount of "residual" urine. If the quantity be considerable, the patient will express surprise, seeing that he had just previously passed urine and was under the impression that he had emptied his bladder. If the quantity of urine be large, the whole of it should not be drawn off at the first interview, lest the patient may faint, or hæmorrhage set in from the vessels of the bladder giving way through loss of their habitual support. If the quantity be moderate a second or third examination should be made to avoid error as to the real amount of the "residual" urine. Before introducing the catheter the hypogastric region should be palpated, for in this way it may at once be recognized that the bladder is distended with urine.

Next, a digital examination of the rectum is made. The forefinger is greased, the crevice beneath the nail having been previously filled with soap,

and introduced slowly and gently to avoid giving pain, and a careful survey of the prostate is made. The extent of the enlargement, if any, should be noted and whether this is general or confined more to one side than the other; whether the contour of the gland is smooth or nodulated; what its consistency, whether soft, indicating adenomatous enlargement, or hard from fibroid overgrowth; also if pressure on the gland gives pain, and, if so, to what degree. Much pain with fluctuation would suggest the probability of abscess, particularly if the patient has had fever recently; uterine hardness with nodulation would suggest malignant disease; and a very hard nodule in the substance of the gland accompanied by tenderness on pressure, the presence of a calculus in the organ. The finger should pass beyond the gland if possible, and sweep the base of the bladder, to ascertain if this is normally soft or hard from sclerosis. Possibly a stone may be felt in the post-prostatic pouch. The examination will be facilitated by making counter-pressure on the abdomen above the pubes with the other hand. The patient should next be placed on his knees on the couch, with his head bent forward and downward and the buttocks rendered prominent by the thighs being flexed on the legs. The finger is again introduced and the rectum surveyed as before. This position renders the prostate more prominent in the rectum than the recumbent one, and the finger can be introduced farther. The impressions conveyed to the finger in both positions are contrasted.

Little information with reference to the condition of the middle lobe will be gained by rectal examination. In fact, there may be great outgrowth of this lobe into the cavity of the bladder when

no enlargement of the gland is recognized by the rectum. A rough estimate of the enlargement of the middle lobe can be arrived at by the introduction of a short-beaked sound. When the instrument has entered the bladder the handle is depressed between the thighs and the beak rotated to one side and then to the other, feeling on which side of the instrument the enlarged middle lobe lies and to what extent it projects into the bladder. If the finger be introduced into the rectum while the sound is in the bladder, a rough idea of the size of the outgrowth may be formed.

Examination of the bladder by the cystoscope will, in a large proportion of cases, give a still more correct estimate of the size and shape of the middle lobe and as to whether or not it is capable of being removed by operation. At the first visit, however, it will not be advisable to employ either sound or cystoscope. At the first visit one rests content with the information gained by the catheter and by rectal examination, taken in connection with the general symptoms.

After examination the patient should go home and to bed for the day. Indeed, when the case is at all far advanced and the patient feeble, it will be advisable to postpone the introduction of even a catheter till he is in his own room. P. J. Freyer (*Lancet*, Jan. 12, 1901).

RENAL INSUFFICIENCY. AUTOINTOXICATION FROM.

Those patients who are suffering from renal insufficiency because of nephritis usually die, not from the nephritis, but from the cardiac complications, namely: the hypertrophy and subsequent dilata-

tion with which, sooner or later, all these cases are afflicted. Hence the main indications for treatment are connected with the heart. If it is pounding because of capillary contraction or arteriosclerosis, nitroglycerin, opium, chloral-hydrate, or iodide of sodium should be given to overcome the peripheral resistance. Careful watch should be kept on the heart, and, if dilatation is threatened, digitalis infusion or digitalin should be prescribed, with rest in bed. In using digitalin what is known as "German Merck" digitalin is personally ordered in preference to the American preparations or the "French Merck." This remedy is given in doses of from $\frac{1}{15}$ to $\frac{1}{8}$ grain three or four times a day. J. T. Jelks (*N. Y. Med. Jour.*, Feb. 9, 1901).

SARCOMA OF THE UTERUS.

Prognosis.—A study of 118 cases of sarcoma of the uterus collected from literature of the past ten years, no case being accepted unless the diagnosis has been verified microscopically, shows that the prognosis is not so favorable in sarcoma as it is in carcinoma of the uterus. In 20 of the 118 cases the result was not stated. Of the remaining 98, in 12 no radical operation was performed, leaving 86 cases in which hysterectomy for the relief of this condition was performed. Of this number 34 are stated to have recovered; but as in many cases the subsequent condition of the patient was not closely followed for a sufficiently long time, the real mortality would be larger than these figures indicate.

Of the 55 cases in which death occurred, in 22 it was mentioned as due to recurrence of the disease, which took place at intervals ranging from five

weeks to two years after the operation. Van Buren Knott (*Annals of Surgery*, Feb., 1901).

SPINE, LATERAL CURVATURE OF.

Treatment.—The mechanical support for lateral curvature of the spine should be as rigid as an oak. It should be light. It should be porous. It should be durable. The plaster-of-Paris corset comes the nearest to these requirements of any of the cheap dressings. Boro-plastic felt, leather, rawhide, and paper should never be used for spinal supports. Celluloid is worse, and the wood corset is absolutely worthless. The aluminium corset is the most perfect support ever devised. The patient can go in bathing without taking off the support.

To change the form of the thorax, which will aid materially in somewhat alleviating the curves, breathing exercises which expand the chest, elevating the ribs, which applies a force direct to the spinal column, assist materially. Exercises should be performed while the corset is on. It is wrong to take it off. The physiological curve can be overcome only by constant support and muscular development, and the pathological lateral curve by preventing the patient from assuming the erect position without his corset. Light gymnastics are far preferable to heavy. Heavy gymnastics develop muscle, but no quicker or surer than light gymnastics. Muscles developed by heavy gymnastics undergo rapid degeneration when the gymnastics are stopped.

An ordinary aluminium corset weighs from one to two pounds, depending upon the size. To prevent cracking and to protect it from perspiration, it is covered with a water-proof enamel, which is applied by heat.

The steps of its construction are as follow: Make a plaster form of the body; send this form to the foundry and have a cast-iron anvil made; polish this, and then at a certain temperature the workmen will bend on to it two sheets of aluminium representing the two lateral halves. The frequent heating and hammering, together with the cylindrical shape, make the corset almost as strong as steel. The two halves are hinged in the back and closed with automatic clasps in front, which stop at any notch to accommodate the corset to the body before and after eating. This corset completes personal armamentarium in cases requiring spinal supports, viz.:

1. Plaster-of-Paris corsets for acute Pott's disease.
2. The Hessian corset for mild forms of lateral curvature, particularly in girls.
3. The aluminium corset for permanent bracing.

The wood, celluloid, paper, wire, leather, and felt corsets are worthless. They change in shape and do not support the spine. A. M. Phelps (*N. Y. Med. Jour.*, Jan. 5, 1901).

TYPHOID FEVER, HÆMORRHAGIC.

Treatment.—In hæmorrhagic typhoid fever treatment is purely symptomatic. Gerhard, in accordance with his views as to the etiology, discontinues the cold-bath treatment, and substitutes a daily warm bath at a temperature of from 33° to 31° C. He includes potato, spinach, and vegetable juices in the diet. To control the hæmorrhage many plans have been tried. On the assumption that the cause is secondary infection, small doses of calomel or other mercurial have been given. Turpentine and

ergot were used by Gilman Thompson in his case, which recovered.

Attempts have been made to increase the coagulability of the blood by means of calcium chloride, as suggested by Wright. In severe cases 15 grains should be given twice daily. This treatment has to be carefully controlled by repeated blood-examinations, as if it is too vigorously pressed it may have the contrary effect to that intended. The same writer also advocates inhalation of carbonic dioxide. The effect of this was *nil* in Osler's case. Local applications of gelatin solution, tannic acid, or suprarenal extract may be tried. It is, however, very uncertain how far any of these remedies are efficacious. A. G. Nicholls and G. E. Learmonth (Lancet, Feb. 2, 1901).

ULCER OF THE STOMACH, PERFORATING.

Since Mikulicz, in 1880, first performed a formal operation for the exposure and closure of a perforated gastric ulcer, the procedure has been employed in many cases with most satisfactory results. A large number of cases in which operative treatment has been employed have been collected and analyzed by Mikulicz, Lindner, Barker, Weir, Lund, Mitchell, Tinker, and Keen, and as the result of their studies much valuable information as to the most frequent site of the perforation, the prognosis, diagnosis, treatment, and the details of the operation have been added to surgical literature.

Perforation is comparatively infrequent in gastric ulcer, occurring, according to various observers, in from 6.5 to 18 per cent. of all cases. In Tinker's collection of 232 cases, only 22 cases of operation for perforation occurred in the United States. This accident is five

times more frequent in women than in men. As regards the results of operations in Tinker's and Finney's combined collection of 268 cases, 139 recovered and 129 died, giving a mortality of 48 per cent. In Tinker's collection of cases operated upon within twelve hours of the perforation, 75 per cent. recovered, and in a late collection of cases 83.78 per cent. of cases recovered. All observers agree that the best result is apt to follow in cases in which a short time only exists between the perforation and the operation.

The ulcer is more commonly situated upon the posterior wall of the stomach than upon the anterior wall, in the proportion, according to Pariser and Lindner, of 190 to 10, and is much more frequent near the pylorus than at the cardiac end of the stomach. Mayo Robinson has observed that chronic ulcers are usually situated near the pyloric extremity of the stomach.

The possibility of more than one perforation should not be lost sight of, for statistics show that in 20 per cent. of the cases this condition was present.

Death from perforated gastric ulcer results from peritonitis, caused by the bacteria which escape from the stomach into the peritoneal cavity at the time of perforation. Richardson considers that the size of the perforation, permitting a rapid escape of the stomach-contents, is an important factor in the development of a rapid form of peritonitis, producing, as he describes it, "a sudden overwhelming of the abdominal cavity rather than a spreading invasion."

The ideal method of closing the perforation is to excise the edges of the ulcer and bring them together by sutures. This, however, is only possible in exceptional cases, and in the great majority of cases infolding the walls of

the stomach over the ulcer by sutures is the procedure which can be most rapidly and safely practiced. Irrigation of the abdominal cavity and careful sponging have both been employed, but thorough irrigation is the safer procedure; drain-

age, either by glass tubes or gauze, is usually required, and pelvic drainage should be provided for, either by long tubes or by a counter-opening near the pelvis. J. H. Musser and H. R. Wharton (*Phila. Med. Jour.*, Feb. 16, 1901).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Johns Hopkins Hospital Reports, Vol. VIII, Nos. 3-9, 1900.—Transactions of the Luzerne County Medical Society, for the Year Ending December 31, 1900. Volume VIII.—Calendar of the Correspondence Relating to the American Revolution of Brigadier-General George Weedon, Hon. Richard Henry Lee, Hon. Arthur Lee, and Major-General Nathanael Greene, in the Library of the American Philosophical Society. 1900.—Some Remarks on the Plantar Reflex, With Especial Reference to the Babinski Phenomenon. By J. T. Eskridge, M.D., Denver, Col., 1901.—The Failure of the Consensus Judgment with Reference to Tuberculosis. By Charles Denison, A.M., M.D., Denver, Col., 1900.—Pyelonephritis in Children, with Report of a Case in which Nephrectomy was Successfully Performed. By Louis Fischer, M.D., New York, 1900.—On the Teaching of Anatomy to Medical Students. Introductory Remarks on the Opening of the Course in Anatomy at the Medical Faculty of McGill University, September 21, 1900. By F. J. Shepherd, M.D., Montreal, 1900.—Some Experiences in the Methods of Treating Hernia by Operation. By F. J. Shepherd, M.D., Montreal, 1900.—Sarcoma and Cirrhosis of the Liver. By W. W. Ford, M.D., Montreal, 1900.—Enteric Fever in Childhood. By A. D. Blackader, M.D., Montreal, 1900.—On the Teaching of Pathology. By J. G. Adami, M.D., Montreal, 1900.—A Clinical Study of Hyperphoria. By John T. Carpenter, Jr., M.D., Philadelphia, 1898.—Ocular Complications of Injuries to the Head. By John T. Carpenter, M.D., Philadelphia, 1900.—An Important Legislative Need. By John T. Carpenter, Jr., M.D., Philadelphia, 1895.—A Case of Pneumonia Treated with Antipneumotoxin. By Charles B. Canby, M.D., Baltimore, 1900.—Iodine Used Hypodermically in the Treatment of Pulmonary Tuberculosis. By A. C. Croftan, A.M., M.D., Pasadena, Cal., 1900.—The Clinical Use of Thermol in Typhoid Fever at the Atlantic City Hospital, Atlantic City, N. J. By A. B. Shimer, M.D., Atlantic City, N. J., 1901.—Problems in the Etiology, Diagnosis, and Treatment of Tuberculous Disease of the Upper Air-passages. By Jonathan Wright, M.D., Brooklyn, N. Y., 1901.—The Non-myxomatous Character of Nasal Polypi. By Jonathan Wright, M.D., Brooklyn, N. Y., 1901.—Therapeutic Suggestions for Children. By Louis Fischer, M.D., New York, 1899.—Infant-feeding. By Louis Fischer, M.D., New York, 1900.—Medical and Surgical Experiences in the South-African War. By Lieutenant-Colonel G. Sterling Ryerson, M.D., 1901.—Drug Standardization Again. Editorial in *Buffalo Medical Journal*, 1901.—Foreign Markets for American Agricultural Products. Testimony of Frank H. Hitchcock before the Industrial Commission. U. S. Department of Agriculture, Washington, D. C., 1901.—Protection of Food-products from Injurious Temperatures. By H. E. Williams. U. S. Department of Agriculture, Washington, D. C., 1901.

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DIABETES MELLITIS.

Etiology.—C. A. Herter¹ states that, as a rule, the diabetes following an injury to the head in the human subject is of short duration, but permanent and even severe glycosuria from such injury is not unknown. Under such circum-

stances it must be assumed either that the pancreas is also involved or that the circulation in the liver has been permanently changed in such a way that no carbohydrate can be stored as under nor-

¹ Med. Record, Feb. 9, 1901.

mal conditions. Another explanation of the inability of the body to burn its sugar is to be found in defective oxidation in the cells, and possibly also to some extent in the blood; but it is evident from certain experimental facts that this can hardly be the primary difficulty in the case of diabetes, for there are conditions in which the oxidative capacity of the cells is markedly diminished,—*e.g.*, acute yellow atrophy of the liver or acute phosphorus poisoning,—and yet diabetes does not occur. Probably the primary difficulty is to be found in the inability of the organism to cleave the sugar molecule in such a way that it can be converted by oxidation into carbon dioxide and water. It is now believed that a ferment produced somewhere in the organism is the means by which this sugar-splitting process takes place. The complete removal of the pancreas is uniformly followed by the appearance of sugar in the urine. It has been shown repeatedly that the pancreatic duct could be ligated, and still no diabetes would result. In personal somewhat limited experience in post-mortem examinations of cases of diabetes there has not been a single case in which the pancreas has not been extensively diseased. There are two forms of pancreatitis, *viz.*: (1) one in which there is an extensive increase of the connective tissue without much involvement of the glandular substance, and (2) one in which the connective tissue is not interlobular, but passes in among the secreting structures and compresses the islands of Langerhans. Diabetes is found associated with this second form of disease of the pancreas. Probably these islands of Langerhans produced an internal secretion which is of use in the combustion of the sugar; the withdrawal of this secretion results in an inability

of the cells to burn the sugar. Recent observation has shown that in normal persons the blood is capable of destroying a considerable quantity of sugar. In diabetics there is an enormous falling off in the ability of the blood to decompose the sugar. The appearance of sugar in the urine, therefore, is due to diminished combustion of sugar, and this diminished combustion is closely related to disease of the islands of Langerhans, in the great majority of cases.

As to the frequency of diabetes mellitus in children, according to the statistics of the New York City Board of Health, which Heinrich Stern² has collected and carefully gone over from 1889 till 1899, there occurred: 4 deaths under 1 year old, 1 death at 1 year, 2 deaths at 2 years, 2 deaths at 3 years, 4 deaths at 4 years, 11 deaths between 5 and 9 years, 17 deaths between 10 and 14 years, 38 deaths between 15 and 19 years.

Out of a grand total of 1867 deaths from diabetes mellitus for the period of 11 years, the mortality from this affection in childhood and early adolescence, when it almost always terminates fatally, being 79, forms about 4.25 per cent. of all the deaths from the disease during the period in question. The period of puberty seems to exert no specific influence on the causation of diabetes mellitus nor on its lethal termination.

The pathogenesis of diabetes in children is not obscure in the measure as is commonly supposed. The glycosuric condition of children, in most cases, has nothing whatsoever to do with the true diabetic state in the adult. The glycosuria is rather due to some developmental anomaly, especially of the medulla oblongata and other portions of the nervous system. Death in these in-

² Jour. Amer. Med. Assoc., Nov. 17, 1900.

stances rather supervenes on account of the developmental structural inefficiency than on account of "diabetes," though the symptom-complex may point to a fatal termination by the latter.

Complications.—According to M. B. Hartzell,³ the greater number of cutaneous diseases accompanying diabetes are of an inflammatory character.

When glycosuria is accompanied by excretion of large quantities of urine, and likewise in the late stages of the malady, the skin is apt to be extremely dry, and a constant desquamation of fine white scales goes on; the hair, too, becomes thin, dry, and lustreless. This abnormal dryness of the skin is usually accompanied by a more or less marked general pruritus. The nails of the fingers and toes are likewise apt to present various abnormalities. They are unusually brittle and devoid of their normal lustre; and in exceptional cases some or all of them are lost. Hemorrhage may take place into the nail-substance, and trophic changes leading to deformity may occur as the secondary consequences of a diabetic neuritis. Intense pruritus localized about the vulva in women, the scrotum in men, the perineum, anus, and inner surface of the thighs in both sexes, is an extremely common symptom. The violent scratching and rubbing to which the patient is irresistibly impelled leads in most cases to the development of an eczema.

Various forms of erythema may occur; the commonest are symmetrical patches situated on the face and a papular variety consisting of split-pea-sized, pinkish, slightly elevated lesions, situated on the forearms and legs; these papules may coalesce after a time to form variously sized patches.

Urticaria of a chronic type is likewise met with in a certain proportion of cases.

One of the commonest and most distressing cutaneous complications of diabetes is eczema, situated most frequently about the genitalia, especially in women. This may begin as a severe pruritus, but in many instances the affection is eczematous from the beginning; the skin is a bright red, and oozes a sticky serum, which soon dries into thick crusts. The inflammation may be limited to the genitalia, but more commonly it spreads up over the abdomen and down over the thighs, oftentimes involving a considerable area. In men the prepuce is often the seat of an eczematous inflammation of a very severe grade, which produces marked thickening and narrowing of the preputial orifice, with the formation of exceedingly painful fissures about its margin, leading in some cases to an extreme degree of phimosis. Balanoposthitis usually accompanies this condition of the prepuce.

In elderly subjects and in the later stages of diabetes a severe form of acne—acne cachecticorum—may occur, due largely, no doubt, to the extreme malnutrition of the skin. In the same class of patients painful furuncles, occurring singly or in crops, and carbuncles, are common events. Carbuncles, besides being an extremely painful and exhausting affection, is often of very grave import, being in many cases the direct cause of the patient's death.

As papillomatosis diabetica Kaposi has described an unusual affection characterized by the sudden appearance of an inflammatory patch on the back of the hand, which suppurated and was followed by ulceration. At the site of this ulcerating lesion numerous papillary outgrowths, partly red and oozing and partly horny, were formed.

³Jour. Amer. Med. Assoc., Jan. 26, 1901.

A much more serious complication is gangrene of the skin.

One of the most characteristic eruptions of diabetes is xanthoma diabeticorum. The eruption is usually moderate in extent, affects by choice the elbows, knees, and buttocks, and consists of yellowish or yellowish-red, rather flat papules. A moderate degree of itching and stinging usually accompanies it. It appears somewhat abruptly, and lasts for a period varying from a few weeks to several months, or even years.

Nagelschmidt has found glycosuria so often in psoriatic patients that he is of the opinion that some causal connection exists between psoriasis and diabetes; but this seems doubtful. Glycosuria has also been found in a certain number of cases of dermatitis herpetiformis. In rare instances abnormal deposits of pigment take place in the skin, as in so-called bronze diabetes.

Purpura is also an occasional complication.

Heinrich Stern⁴ thinks the most insignificant causes may be factors in the production of diabetic coma. Digestive disturbances, long-continued proteid diet, constipation, bodily and mental exertion, localized affections,—as inflammations and formation of abscesses,—chloroform anæsthesia, and other occurrences predispose to coma.

There is not a single phenomenon which indicates with any degree of certainty the approach of the comatose condition. The appearance of the heretofore described coma-casts may be of diagnostic value, but one may fail to find them in some cases of diabetic coma. The increased excretion of oxybutyric acid may serve as an indication of imminent danger, but von Noorden relates a case where oxybutyric acid was repeatedly found in the urine in quantities not

less than 2 per cent. and where no coma supervened.

According to Heinrich Stern,⁵ among a mortality from diabetes of 202 in New York City, death supervened 60 times by coma. The greater number of these 60 instances which were designated as "coma," it is safe to assume, were not those of typical diabetic coma. Of these 60 who have died in coma, 23—8 males and 15 females—were Jews.

While the proportion of the total coma cases to the total mortality from diabetes is 60 to 202, or 29 per cent., coma occurred in 43 per cent. of the fatal cases of diabetes in the Hebrews.

Sex: Of the diabetics who have died in coma, 26 were males and 34 females.

Age: The lowest age of any diabetic who has died in coma in 1899 in the City of New York was 15 years, the highest 83 years and 2 months. The mean age of all who have died in coma amounted to 53 years and about 3 months. The mean age of the males was 49 years and about 6 months, and that of the females 56 years and almost 2 months.

Duration of diabetes mellitus before coma ensued: In but few instances—in fact, too few to be of any definite value—was the duration of the affection, prior to the establishment of coma, recorded. The average duration of the 9 recorded instances amounted to 4 years and 5 months.

Duration of coma: But 9 certificates give information as to the duration of the comatose condition. This varied from two hours in one instance to one week in another. The mean duration of the comatose state in these 9 instances was a trifle over 44 hours.

Diet.—J. M. Anders⁶ believes in dis-

⁴ Jour. Amer. Med. Assoc., Dec. 8, 1900.

⁵ Med. Record, Nov. 17, 1900.

⁶ Jour. Amer. Med. Assoc., Dec. 8, 1900.

carding a very rigid diet for a mixed one. It is surprising how small a quantity of starch is really needed to keep up the strength of patients suffering from diabetes. When a mixed diet is used, 1 or 2 ounces of carbohydrates are often quite sufficient. The main point is to prescribe a definite amount of starchy food and watch its effects, from day to day, on the urine. Levulose is personally used for sweetening for coffee or tea at the table, in preference to saccharose.

W. Howship Dickinson⁷ considers that by diet one can always lessen the diabetic perversion even where it is not abolished. Diet, putting aside exceptional circumstances, always does good, though not always all the good that is required. The avoidance of sugar and starch is the guiding principle of diabetic diet. The sufferer from diabetes has a large liberty in the way of food. He may dine with a city company and—so long as he does not take bread or potatoes—feast like an alderman. The substitutes for ordinary bread present the chief difficulty. Gluten bread is theoretically correct, but some patients cannot eat it. But the gluten flour need not be made into bread, and it is often less objected to in other shapes which can be given to it in the domestic kitchen: cakes, buns, and puddings. Bran biscuits often do well and are useful, as they tend to obviate the constipation which is one of the troubles of the disease. Green vegetables—spinach, French beans, and the like—are fully recognized as fit for the diabetic; but some vegetable products which are not green are of especial use in diabetes; these are vegetables containing much cellulose. Cellulose is a carbohydrate, but it does not appear to be easily converted into sugar, and, indeed, it is doubtful whether in the human body it undergoes any such conversion.

One of the troubles of diabetes is constipation; cellulose largely passes off in the fæces and tends to obviate this condition. The more bulky varieties of garden-stuff, whether roots or fruits, may be made use of, such as cucumbers, vegetable marrows, tomatoes, and radishes. Apples, if not obviously sweet, may be permitted in small quantity. These articles of diet are not at all absolutely free from sugar, but none contain much sugar, and certainly they are often useful, though perhaps not absolutely correct in theory.

It is of importance, even of vital importance, not to overdo the restrictions or to be too sudden in their introduction. In mild cases, where a minor degree of deprivation will suffice to remove the sugar from the urine, one should not push it further. Milk, which—as containing sugar of milk—is theoretically inadmissible, is often normally assimilated when cane-sugar is not. If milk is found not to increase the sugar in the urine it should be freely given. As to water, one should let the patient drink as much as his thirst demands. If there be any threatening of diabetic toxæmia, the more he drinks, the better.

LUPUS VULGARIS.

Symptoms.—A. Ravogli⁸ says lupus vulgaris gives origin to a group of lesions, which begin in the form of small nodules imbedded in the derma, which may remain as maculæ, lupus maculosus, or raise up in papules or tubercles, forming the variety known as lupus nodosus, tuberculatus, elevatus, non-exedens, and non-ulceratus. The tubercle has a dull, reddish, purplish hue, of the size of a

⁷ *Lancet*, Feb. 9, 1901.

⁸ *Cincinnati Lancet-Clinic*, Oct. 6, 1900.

pin-head to that of a pea, soft when broken with instruments. It may remain for many years in this condition, but usually breaks down, leaving a small round ulcer, which is readily covered with a thick, adherent crust. The changes in the surrounding tissue have given origin to the different forms of lupus found recorded by authors. (Edema, hypertrophy, hyperplasia, lymphadenitis, etc., often found accompanying lupoid eruptions, have caused the nomenclature of lupus hypertrophicus, exuberans, exedens, papillosis, etc.

In some cases the lupoid nodules may be involved by resorption of the material, leaving in their place a fibroid metamorphosis. The fibroid masses are mixed with new nodules, which are together with an irregular lumpy cicatricial tissue, giving the appearance of lupus sclerosus.

The condition of the resulting ulcerations has been also the subject of different nomenclatures. When the ulceration spreads over surface in a semicircular form, the lupus has been called *serpiginosus*; when the ulcerations remain limited, but destroy the skin deeply, it has been called *lupus rodens*. The condition of the granulations in the bottom of the ulcers when growing abundantly has caused the lupus to be called *lupus fungoides* or *vegetans*.

Lupus is a disease which may attack any part of the body; it prefers, however, the face. Often the first efflorescence is seen on the nose or on the cheeks, as a dull-colored maculation or minute nodules accompanied with a purplish thickening of the skin. In consequence of the ulcerations or of the reabsorption of these nodules a thick cicatrix results, which, by its retraction, is often the cause of ectropion of the

eyelids, or of the lips, with permanent deformity. The subcutaneous tissues, the cartilages, and the bones of the nose are equally affected, with destruction of the nose, leaving only two ovoid cavities. Sometimes its destructive power spreads and the ravages of the disease are frightful in severity. The neck, the ears, the body, the genitals, and the extremities are equally affected by this disease, leaving ugly scars and impairment of the functions. It is a tuberculosis of the skin, where the tubercle bacillus is always present; it is an affection which more closely resembles tuberculosis of the lungs.

Treatment.—Total extirpation, in all cases where it can be practically performed, and covering the defect with a Krause flap (subcutaneous tissue and epidermis), appeals to M. L. Heidingsfeld⁹ as being the most radical, successful, and cosmetic method of treating lupus vulgaris. Recurrences are not prone to occur when the affected area is thoroughly and completely removed by a sufficiently wide border, and the flap and denuded area are not contaminated by tubercular secretion from the affected area. Instruments that are used in removing the affected area should be laid aside when the grafting is performed. The flap should be a third larger in area than the denuded surface, so as to adapt itself easily without undue tension. Flaps should be preferably taken from the inner surfaces of the thigh, to avoid the disfigurement of transplanted hair-follicles. When these precautions are taken the cosmetic results are excellent and recurrences rare or so slight as to be easily controlled by the actual cautery. Professor Land, of Vienna, employs this method almost exclusively.

⁹ Cincinnati Lancet-Clinic, Oct. 6, 1900.

As a secondary measure, especially when the lupus is very limited in extent, or confined to a few isolated nodules, the actual cautery is very efficient.

The x-rays and the Finsen method have been employed with varying degrees of success. The chief features to recommend them are that they are painless and the cosmetic results are usually excellent. The great disadvantages are the long continuance of the treatment, usually months and years; their excessive cost; and the frequent recurrences.

The most satisfactory surgical treatment in H. Rockwell Varney's hands¹⁰ is the curette. With a common dermal curette one is able, with but little experience, to distinguish readily the healthy tissue from the broken-down cheesy degeneration of the tubercle. In this method one does not destroy bands or islands of healthy tissue, which if left aid far more in healing than the skin-graft, which would have to be used in excision. In this treatment it is always best to operate without freezing mixtures, as anæsthesia by such mixtures alters the color and texture of the tissues, and thus renders it difficult to see or feel the diseased areas.

A treatment comparatively new is treatment by means of the x-ray exposure. The treatment of lupus by x-rays has many advantages. It is painless, the exposures are short in duration, the area treated may be of any size or location, no scarring from treatment if exposures are properly conducted, the time of exposures is regulated by the density of the rays, and the results are evident with much less scar.

The antiseptic power of the x-ray is as yet unsettled. Some of the investigators say that the tubercle bacilli will thrive under any exposures to the x-ray, while others claim that they are de-

stroyed. Experiments have been personally made with a series of tubes inoculated from a pure culture of the tubercle bacilli. Using two tubes as controls, all the tubes were exposed—one, fifteen minutes; three, a half-hour; and two, three-quarters of an hour—through the opening of the tube four inches distant. Two tubes were also exposed three-quarters of an hour through the glass. All the tubes were placed in the incubator at the temperature of the human body and the cultures examined every twenty-four hours. In forty-eight hours distinct growth was seen in all tubes exposed, and not in the control tubes. Since the average time for culture of this germ sufficient to show growth is about six days, a marked acceleration in the growth of the germ was brought about by exposure to the rays; therefore it cannot be said that the action of the rays on lupus lesion is an antiseptic one.

J. T. Knox¹¹ has successfully treated a case of lupus by the x-ray. Although effecting a cure in this case, it would be impossible to formulate rules that would apply to the treatment of all cases of lupus, from the fact that the effects of the rays vary, according to the idiosyncrasies of different persons. This fact is an important factor in the application of the x-rays for any purpose, and can only be overcome by the most careful experiments on the part of the operator at the beginning of each case.

The location of the disease in this case involved the nose and upper lip, and had so far progressed as to cause perforation of the nose septum. Since the x-ray treatment there is almost entire absence of scars, or any condition of the tissues

¹⁰ Med. News, Feb. 16, 1901.

¹¹ Jour. Amer. Med. Assoc., Nov. 10, 1900.

that would indicate that the disease had ever existed.

The treatment consisted of the application of the rays from six to ten minutes each sitting, every other day, placing the affected parts from four to eight inches from the tube, according to the density of the rays. The whole number of applications made during the treatment was seventy-four, and improvement was apparent very soon after beginning the treatment. The unaffected parts of the face and head were shielded by means of a mask, thus preventing the possibility of producing dermatitis and loss of hair, incident to the use of x-rays.

The only cases heretofore reported cured in the United States by the x-ray treatment were those by Dr. Philip Mills Jones, of San Francisco, Cal., who reported two cases treated and cured by him during the early part of the year 1899, and which have shown no signs of recurrence.

A case of lupus has been healed with Roentgen rays by William A. Pusey.¹² The technique of the treatment used was that of Schiff and Freund. It consisted of repeated exposures to a weak light of definite strength. The light was produced by a secondary current generated in an induction-coil of 30-centimetre spark-length, which in turn was energized by a very weak primary current. The primary current used was that recommended by Freund, namely: a current of 12 volts and $1\frac{1}{2}$ amperes interrupted from 800 to 1000 times per minute. The exposures were continued from five to fifteen minutes, and the distance of the tube from the surface varied from 15 to 5 centimetres. Adjacent surfaces were protected by lead masks. The object to be obtained by the exposure was to get the required effects of the

rays without overstepping the bound of safety.

Whether this case is a complete cure or not can only be determined by the lapse of time. There remain now, excepting the scars, no evidences of the disease; and even should more or less recurrence of the lupus take place, the results may still be called extraordinary. The only thick scars left are those which were in existence before the treatment began, and they have become less prominent, much softer, and more pliable. The scars which have taken the place of the ulcers present when treatment began are soft, thin, flexible, and white, and are as healthy-looking as they could possibly be. At the beginning the scars on the neck interfered very considerably with motion; now they interfere scarcely at all.

The only other method of treatment which is comparable, as regards the cosmetic results, is Finsen's treatment by ultraviolet light, and his results are probably the same as those attained by Roentgen rays. In celerity of treatment Finsen's method does not compare with that by x-rays. Finsen's patients have about an hour's exposure daily for each 1.5 centimetre square of disease, and accordingly a cure is a matter of one or two years. In order to fortify the effects of the light, moreover, Finsen resorts to pyrogallie acid, curetting, and other local adjuvants to treatment. The effect of the x-rays is sufficient without these aids.

A. C. Geyser¹³ thinks the nearest approach to a specific treatment for this cutaneous disease is that with the Roentgen ray. The property of this ray to act either superficially or deeply is specially

¹² Jour. Amer. Med. Assoc., Dec. 8, 1900.

¹³ Med. Record, Feb. 9, 1901.

valuable. The patient is seated behind a screen of lead perforated over the area to be treated, and having a rim around this perforation. A "soft" tube should be used, such a tube as shows the bones of the wrist white, and not having sufficient penetration for the ordinary surgical uses of the x-ray. If too much pain results from the application, the static spray should be temporarily substituted for the x-ray. The exposures may be made daily at first, and later on at intervals of a week. The worst case personally treated, one of nine years' standing, received forty treatments; others have been cured after eight or ten treatments. Out of 11 cases treated by this method, 8 have been completely cured with little or no disfigurement; 3 are now under treatment with every prospect of an excellent result.

Reginald Bowman¹⁴ reports a case of old-standing lupus vulgaris successfully treated by tuberculin injections and x-rays. A large lupoid ulcer occupied the left angle of mouth, involving half the upper lip and three-quarters of the lower. Tubercular nodules could be felt extending outward in the apparently healthy cheek to a line dropped vertically from the outer canthus of left eye.

The surface of the large ulcer was nodulated and raw, secreting pus and serum, which rapidly crusted and became offensive to smell; hæmorrhages from the cracked surface were frequent.

Tuberculin treatment was begun in March, 1900. This case is of particular interest because (1) of its long duration of nine years; (2) the steady advance of the disease, in spite of all hitherto known remedies—*repeated* cutting and scraping operations were performed, and the usual local and medical remedies applied over many years.

The tuberculin treatment did some

good up to the middle of May, and the further saturation of the system with the remedy during another month had an inhibitory effect on the injured tissue.

The immediate effect of the x-rays was very marked, the reaction following next morning, producing hyperæmia, and swelling of the ulcer or nodule exposed, with the formation of a thick crust infiltrated with red blood-corpuscles. This crust was bathed off, and the surface, being painful, was protected with a thick coating of vaselin. *After each* sitting to the x-rays the surface of the ulcer was extremely sensitive to cold and to currents of air, always being painful unless protected by an unguent. The repeated applications of the rays had no injurious effect on the young, ingrowing epithelium: on no occasion did a part once covered by new skin exfoliate and become bare again.

To prevent sparking of a small tube when using a powerful coil, it was found that if a small piece of copper wire be attached to the anodal terminal of the tube, and curved to a convenient distance from the cathodal end of the tube (as found by testing), the excess of sparking will flow between the copper wire and cathodal end of tube. The tube can then, with perfect safety, be placed close to the patient.

According to Malcolm Morris and S. Ernest Dore,¹⁵ the treatment of lupus vulgaris and other diseases of the skin by means of concentrated light-rays has now become established as a method which may fairly claim to rank as second to none in importance and utility. The appliances personally used are in every respect similar to those used by Professor Finsen, of Copenhagen. However,

¹⁴ Australasian Med. Gaz., Jan. 25, 1901.

¹⁵ Brit. Med. Jour., Feb. 9, 1901.

electric light only is used. A current of about 75 ampères and about 60 volts has been found sufficient to produce a good reaction in the majority of cases.

In order to get a strong light it is most important to see that (1) the lenses, especially the bottom lens, are clean and bright; (2) the water is clear and free from floating particles. The bottom lens should be thoroughly cleaned and polished every day, and this is greatly facilitated by having it detachable, as in the newer pattern. The water should be changed every day. The use of ordinary tap-water (which is used in the compressing glasses) has been found to give as good results as distilled.

The area treated is, as a rule, kept well within the focus of the light, but a smaller focus, if it can be borne, has a greater effect. It has been found convenient to use thumb-screws instead of the ordinary ones for focusing. It is very important that the tubes should be kept in a straight line with the light-rays so that none of these are lost by impinging on the side of the telescope.

It is also essential that the rays should fall perpendicularly upon the compressing glass; by the use of card-board or metal screen fixed to the end of the tubes, the slightest deviation of the glass will throw light upon the screen, and this can then be rectified. This has been found very useful, especially when the attendant is inexperienced in the treatment.

Elastics have been used to fix on the compressors when possible, for, although somewhat more painful for the patient, they insure firm and consistent pressure being applied all the time, and this is difficult to keep up with the fingers.

The resulting reaction varies in intensity and according to the idiosyncrasy of the patient, but largely depends

upon the intensity of the light at the time of exposure, which itself depends upon many factors, such as the focus being exact, the size of the focus, the clearness of the water and lenses, the quantity of the carbons, etc. In addition to these factors there are those, of course, which arise in the nature of the part that is being treated, as pointed out by Mr. Morris in a former article, namely: the depth of the disease, the amount of scarring, pigmentation, and vascularity.

Time of onset varies from five or six hours to twenty-four hours; it is generally noticed the following morning.

Severity is usually slight for the first few days of treatment, and then becomes more marked; it does not appear to diminish in intensity after continual treatment, but, if anything, to increase.

It only varies slightly according to the idiosyncrasy of the patient.

After a preliminary hyperemia with slight redness, a bleb forms, bursts, and dries, to form a thick yellow crust at about the end of a week, and in ten days or a fortnight the sore has completely healed.

When situated over loose tissues,—for example, near the eye,—there is often great swelling of the neighboring parts, so that the eyes may be nearly closed.

Lupus vulgaris is *par excellence* the disease most benefited by this treatment, although it cannot be regarded as specific.

In several cases one application has been sufficient to cause the disappearance of a small isolated superficial nodule,—at any rate, for the time being.

As regards the time required for treatment, it may be said, in general terms, that in an extensive case a single spot is treated daily, and the parts first treated are sufficiently healed in a few days to allow of their being treated again. If

there is only a small area to treat, the applications are continued as long as possible until the soreness of the part and the crusts formed necessitate cessation of treatment for a few days, when it is again continued. In an extensive case involving, for instance, both sides of the face, a year with intervals of rest may be given as a rough indication of the duration of the treatment.

The use of pyrogallic-acid ointment, though—as pointed out by Dr. Bie—not necessary for the success of the treatment, will, in cases where there is great thickening of the skin, considerably lessen its duration. A 5-per-cent. ointment has been used in a few cases for about a week, and then the part is allowed to heal before the light applications are begun. By this means the thickening is reduced and the light can penetrate more easily.

In the preparation of the patient the crusts are removed with forceps; the area to be treated is then bathed with boric lotion, and, if there is any grease on the part, with ether. The skin is then marked with a blue pencil so as to insure the light being applied to the same spot. After treatment the compressors are cleaned with spirit and carbolic acid. The diseased surface treated is dressed, if necessary, with a simple zinc-lanolin ointment, or a paste with zinc, vaselin, and starch, and a little boric acid.

The advantages of the method may be briefly summed up as follows: Reliability, painlessness, excellent cosmetic results; less liability to relapse, although this may possibly be due to the fact that the patients are under daily treatment and constant supervision; avoidance of surgical measures. It may also be a useful adjunct to other forms of treatment.

Its principal disadvantages are the

long time required, the small area treated at a time, and the expense.

MEASLES.

Diagnosis.—Henry Koplik¹⁶ remarks that the exanthema of measles of the discrete type is the only eruption which so closely resembles that of roetheln as to be constantly mistaken for it. In all such cases the buccal mucous membrane has been the crucial test personally. As the disease progresses one does not note in roetheln the tendency of papules to become confluent over any great extent of surface, as seen in measles.

L. Falkner¹⁷ says it seems now to be generally recognized that the special spots first discovered by Filatow in the mouths of patients suffering from morbilli are pathognomonic of the disease.

Filatow's spots appear as very fine white specks. Koplik, however, describes them as bluish white, but most observers will probably agree with Filatow in considering them to be white. In size these spots are often quite minute, and require a strong illumination for their recognition; at other times they are three, or possibly five, times as large, and are then very readily distinguished even with the reflected light of an oil-lamp. On rubbing the spots with the handle of a teaspoon it will be found that the white substance of which they are composed is not at all easily removed. Around each spot is a red areola. On the first day of their appearance the red areola may, however, occasionally be absent, and it will then be very difficult, if not impossible, to make a confident diagnosis. These little spots consist of papillæ, the epithelium of whose summits has become pulpy and whitened, while

¹⁶ Jour. Amer. Med. Assoc., Nov. 10, 1900.

¹⁷ Lancet, Feb. 2, 1901.

the papilla itself and the area of mucosa immediately surrounding it have become hyperæmic and slightly swollen, so that one gets the appearance of the white speck surrounded by the red areola. Certain observers have erroneously described them as vesicles. In cases in which this exanthem is very abundant the individual specks may lie in such close apposition that the white substance of contiguous specks may coalesce, thereby forming spots of a size unusual for Filatow's spots, and raising in one's mind a suspicion that they may be due to some form of stomatitis other than the kind in question. Filatow's spots, when they disappear, generally do so with great rapidity. They are often present in moderate abundance on the one day and entirely absent on the next.

The commonest site is the buccal mucous membrane. If the spots are few in number, the most likely place to find them is opposite to, and on a level with, the bases of the lower milk molars on either side; in this place they often form a small cluster. Another very favorite locality is the corresponding situation with regard to the upper molars; here also a cluster may be seen. Another position is opposite to the line of junction of the upper and lower molars when the jaws are closed; here they are frequently distributed as a somewhat straggling line. At other times they are more or less evenly disposed over the mucosa in greater or less profusion. After the buccal mucosa the inner surface of the lower lip is the part most commonly affected. In this locality, however, less white substance is usually present at the summit of each spot, so that the recognition of the spots is more difficult. The spots are best seen close to the fornix of the lip and the jaw. The third commonest site is the inner surface of the upper lip,

this site being far less frequently affected than the preceding. Among 76 cases observed there were three in which Filatow's spots were distinctly seen to be invading the gum of the lower jaw. Filatow's spots may also be seen on the buccal mucosa as far back as its posterior limits, and in some of the above cases they were noticed to be present on the bridge of mucosa which passes on each side between the upper and lower jaw at the back of the posterior molars and which connects the cheek with the soft palate. In this situation they were present in ten cases. The spots may also occasionally be found on the soft palate itself.

With regard to the time at which the spots first appear, Filatow isolated a case six days before he saw the exanthem. Knöspel, in describing his 41 cases, says that he found Filatow's spots in 1 case five days, in 6 cases four days, and in 3 cases three days before the exanthem. Maroney, among 140 cases of morbilli, observed the spots in 2 cases four days, in 4 cases three days, and in 20 cases two days before the exanthem. Koplik cites 16 cases, and among these the earliest appearance of these specific spots of Filatow was 3 days previous to the rash on the skin. Among personal 76 cases they occurred in 9 cases three days before the exanthem.

In the formation of the diagnosis the following conditions must always be borne in mind. 1. Certain spots of a permanent nature are often present on the buccal mucosa. These, when present, are papules of about the size of a medium-sized Filatow spot; they are, however, quite inerasable and in color are always yellowish instead of white, and consequently when once distinguished should no longer give rise to trouble. 2. One writer (Rolly) says that

small curds of milk form the only real difficulty; this should not be so, in that curds of milk would not be fixed to the mucosa at all, while Filatow's spots are firmly adherent. 3. In thrush the spots are so large and the distribution so anomalous for Filatow's spots that there is no difficulty in distinguishing the two conditions, thrush occurring so often over the soft palate, on the tonsils, and on the dorsum of the tongue; situations for the most part unaffected by Filatow's spots. 4. Aphthous stomatitis is the only great difficulty in differential diagnosis. A large plaque of stomatitis is easily excluded, as, for instance, the plaque so often seen on the buccal mucosa level with the first molar teeth; but smaller spots of stomatitis, and especially the small fugitive ones so often encountered at the commencement of febrile disorders,—*e.g.*, scarlet fever,—and which vanish within a few days, sometimes offer great difficulties in diagnosis from Filatow's spots, especially on the first day of their appearance. The principal differences, however, are these. Small aphthous spots are usually much more readily erased with the handle of a teaspoon; they often lack the red areola; some of them are often too big, thereby casting doubt on the others; they are usually too opaquely white for Filatow's spots; and, besides these points, ulceration is often present at their bases.

With regard to the absence of Filatow's spots in diseases other than morbilli Sobel states that for two months in 1898 he took special pains to examine the buccal mucosa of children affected with various skin eruptions, and that among the 1000 cases he examined during that period he in no case found any spots of a similar nature. To this personal witness can be borne, for during the last two and a half years' practice at

a fever hospital special attention has been paid to this point, and, excluding the presence of morbilli, these spots have never been seen in any of the 3000 or 4000 cases examined during that period.

Henry Koplik¹⁸ thinks his sign in the diagnosis of measles is only of value as it appears on the buccal mucous membrane (the inner surface of the cheeks and lips). Any signs, spots, or appearances on the hard and soft palate, the pillars of the fauces, or the conjunctiva are of no value and rather misleading, for signs and spots exactly similar to those described on the hard and soft palate and pillars of the fauces appear not only in measles, but also in roetheln, scarlatina, grip, and simple sore throat. The buccal spots, as personally described, appear only in measles, and in none other of the exanthemata. They must be looked for in a very strong daylight. They must be seen in the discrete state: that is, small, irregular, rose-colored spots, with a very minute bluish-white speck, just large enough to be visible in the centre of the rose area. Patches of yellowish specks must be excluded.

Influence upon Pertussis.—W. B. Young¹⁹ notes that during last winter and spring very severe epidemics of pertussis and measles were witnessed in White County, Tenn. The whooping-cough made its appearance a few weeks previous to the outbreak of measles. Four aggravated cases of pertussis contracted measles, and not one of the four had a symptom of pertussis after the measles eruption was well developed, and all made an uneventful recovery from both diseases. The children (aged from two to four years) had from fifteen to twenty paroxysms per day. Two of the

¹⁸ Maryland Med. Jour., Feb., 1900.

¹⁹ Med. News, Mar. 2, 1901.

cases had hæmorrhages from the mouth with almost every paroxysm.

The question arose: what caused such a sudden cessation of so marked symptoms of the pertussis when it became complicated with measles? Did the germ or toxin of measles destroy or counteract the germ or toxin of the pertussis? Would the marked symptoms of the whooping-cough have ceased in the same way had it been complicated with scarlet fever or some other zymotic disease? Or was it simply a coincidence?

From these cases it is concluded that it would be nothing strange or improbable to find that the germs of measles or their products will destroy or neutralize the germs or toxins of pertussis. To say the least, from a careful study of the subject, from the observations of other physicians, and from personal experience, it is difficult to believe that the cases above referred to were merely incidental.

Prophylaxis. — C. F. Wahrer²⁹ thinks measles should always be quarantined against in children's hospitals, in private schools, in severe winters, and in the unsanitary districts of crowded tenement wards or other unhealthy communities, since in these cases complications are easily evoked, especially tuberculosis following the disease as a sequel. But when children in ordinary health can be exposed to a mild epidemic of measles, there would probably be the same gain as is experienced in the substitution disease of cow-pox for small-pox.

In case the susceptibility to acquire measles diminished much as adult age is reached, it would be more worth while to quarantine, but such is not the case; adults are just as likely to acquire measles as children, when exposed to the contagion or an epidemic, and when acquired become usually more dangerous.

There is, however, a margin always in favor of quarantine, and that margin is the doubt in diagnosis. Until that is fully established, while one fears a case of measles or varicella may be scarlatina or variola,—a mistake that not only happens to the neophyte, but to the oldest veteran in practice at times,—it is best not to allow patients to come in contact with others.

M. K. Allen²¹ remarks that measles is spread from person to person directly and indirectly. Isolation and disinfection are known to be the best means of preventing the spread of this disease, and these measures should be much more strictly enforced than is now the custom.

PNEUMONIA.

Diagnosis. — H. B. Allyn²² says the physical signs of sero-fibrinous or purulent exudate in the pleura are usually so different from the physical signs of pneumonia that one is likely to feel, early in his practice, an unwarranted confidence in his ability to diagnose one condition from the other. Among the most important physical signs of an exudate in the pleura are diminished or absent vocal fremitus, diminished or absent vocal resonance, and faint or absent breath-sound except posteriorly over the compressed lung. On the other hand, in pneumonia the most important and constant physical signs are increased vocal fremitus and resonance and bronchial breathing. But, just as there are cases of so-called massive pneumonia in which the vocal resonance and fremitus are not increased and in which bronchial breathing is absent, so there are cases of pleural exudate in which vocal resonance and

²¹ Jour. Amer. Med. Assoc., Nov. 10, 1900.

²² Pediatrics, June 15, 1900.

²³ Phila. Med. Jour., Sept. 29, 1900.

fremits are present or increased and in which the breathing is bronchial or tubular. For the most part, such cases are discovered at autopsy, but there are a few clinical reports.

The question naturally arises: Is there any certain way in which a pleural exudate can be recognized? Evidently there is no pathognomonic sign. The only safe way is to examine for all the physical signs and not expect any one sign to have a fixed and definite value. The value of a particular sign must be determined with reference to the special case under study and in connection with all the other signs. Thus, flatness on percussion and greatly increased resistance indicate fluid in the pleural cavity rather than consolidation of the lung; but they are far more significant if the upper line of flatness follows the curves studied by Garlan and Ellis; if there is change in the level of flatness on change of posture of the patient; if above the level of flatness anteriorly there is Skodaic resonance; if there is displacement of organs, and if there is restricted or absent movement of the diaphragm on that side.

In the same way, diminished or absent vocal resonance and fremitus, and distant or absent breath-sounds, while very valuable and, indeed, almost constant signs of pleural effusion, cannot be relied on exclusively. Confirmatory signs must be sought for, and in all doubtful cases the question decided by puncture with a sterile needle.

The most important test of the presence of fluid in the pleural cavity is puncture with an aspirating needle. The large syringe and needle used for antitoxin injections are preferable. In small, old empyemas the amount of pus may be small and not be reached unless the puncture be made lower than the sixth

or seventh interspace, in which case there is danger of puncturing the diaphragm or liver. Or the needle may be thrust into a fibroid lung and a dry tap result. Or the pus may lie between the lobes and be difficult to reach. Sometimes a number of punctures has to be made before the pus is struck.

On the other hand, pus may be obtained from a subphrenic abscess, from the pericardium, or from a dilated bronchus or lung-cavity.

The x-rays are of great service in the diagnosis of pleural effusion, and of the amount of fluid present. Williams says that when the effusion is large no more rays pass through it than through the liver, and the outlines of the diaphragm, ribs, and heart are obliterated on the side of the effusion. If there is a smaller amount of fluid, the outlines of some of the upper ribs are seen, and with a small effusion the outlines low down in the thorax only are ill-defined. The fluoroscope detects displacement of organs which may not be discovered by percussion, and so helps to distinguish between pleural effusion and thickened pleura. The upper line of the shadow may be made to move by shaking the patient.

Prognosis.—Christopher Graham²³ notes that prognosis depends on (1) age, being grave in the very young and old; (2) race, negroes the most readily succumbing; (3) habit, the intemperate or those suffering degenerative changes being less able to withstand the infection; (4) toxæmia; (5) fever; (6) general pneumococcal infection; (7) the location and extent of pathological changes; (8) complications; and (9) the kind of infection. The prognosis is better in cases infected by pneumococcus than by streptococcus or mixed infection. Death is most often

²³ Northwestern Lancet, Mar. 1, 1901.

from heart-failure, in which the greatest factor is toxæmia; and the next is the excessive cardiac strain due to mechanical interference with the circulation and respiration. The absence of leucocytosis means grave prognosis or mild infection.

According to William Ewart and Beaumont Percival,²⁴ the various kinds of treatment which have been adopted from time to time have been repeatedly shown by statistics not to have modified materially the mortality from pneumonia. Most of the methods have not yielded better results than those obtained by careful nursing without drugs; while some have not even come up to the latter standard. This means that a certain proportion of cases recover independently of treatment, and that the percentage of fatal cases is not reduced by any form of treatment below a certain minimum, which corresponds closely to that obtainable by proper nursing and the expectant plan, and that the effects of potent drugs is more obvious in the direction of danger than of relief.

Since the prognosis seems to depend chiefly upon the individual features of each case rather than upon the mode of treatment, cases may be classified early in the attack into three groups: (1) the cases likely to recover (pneumonia in children, in healthy young people, and in temperate robust adults); (2) the cases almost certain to be fatal (double pneumonia in old age, in confirmed alcoholism, or complicating severe constitutional diseases); (3) the cases with uncertain and exceedingly anxious, though not hopeless, prognosis (severe pneumonia in unhealthy or debilitated subjects of all ages, but particularly after thirty).

The first group does not lend itself to any profitable therapeutical investigation. The second is probably beyond the

capabilities of any remedies likely to be available in the near future. But in the third group, if only the suitable remedy could be found, the balance might conceivably be turned in favor of recovery. It is in these cases, in which, sometimes, judging from outward appearances, all seems at first to be serene, that a sudden change for the worse supervenes, often about the fourth day of the disease, perhaps owing to the liberation and the absorption of toxins.

Treatment.—J. M. Allen²⁵ administers a calomel and rhubarb purge at the beginning; afterward the alimentary canal is to be kept open with castor-oil and turpentine. Three hours after the purgative he begins with sodium salicylate, 10 to 15 grains, given in 4 drachms of Phillip's milk of magnesia every three or four hours. During the exacerbation of fever three doses of 5 to 7 grains of Dover's powder are given. Digitalis, strophanthus, and strychnine are given in the middle of the second stage in small doses, increasing as the heart may demand. About the fourth to sixth day the sodium salicylate is discontinued, and for it is substituted tincture of the chloride of iron, potassium iodide, quinine, nitroglycerin; as a matter of course, the heart-tonics and stimulants must be continued in full force. During the last two years oxygen inhalations have been used with great benefit.

The patient's diet should not be restricted, unless he be jaundiced by acute duodenitis; then the diet should be restricted to milk and eggs.

William Porter²⁶ notes that, in the experiments at the St. Louis City Hospital, venesection is ordered as soon as the

²⁴ Brit. Med. Jour., Sept. 29, 1900.

²⁵ Jour. Amer. Med. Assoc., Mar. 2, 1901.

²⁶ Phila. Med. Jour., Dec. 15, 1900.

diagnosis is well established: *i.e.*, within four days at farthest from the initial chill, and generally earlier. The amount of blood to be removed is not necessarily large. More can be removed if necessary, and, until this method of treatment is better established, it should not be pushed to extremes. From 8 to 12 ounces will generally give relief in the average cases. At once, the subcutaneous injection of salt solution is ordered, giving this the preference over the intravenous injection because it is slower and the effects more gradual. In an urgent case one should not hesitate at transfusion.

A most convenient method of preparing the normal salt solution is a modification of Jennings's condensed solution. The solution is:—

- R Sodium chloride, 30 grains.
- Potassium chlorate, 60 grains.
- Sodium sulphate, 60 grains.
- Sodium phosphate, 40 grains.
- Sodium carbonate, 60 grains.
- Distilled water, to make 6 fluid-ounces.

One part of this solution in sixty of distilled water.

It is hoped that further investigation may justify this method as an addition to the treatment in pneumonia, for it should be by no means a substitute. Oxygen seems to be especially useful after the injections of the salt solution.

Heart-tonics should be chosen according to the indications. Strychnine is nearly always indicated, and digitalis, if there is vascular relaxation and an easily compressible pulse. On no account should heart-depressants be used, even in the first stage, to lower arterial tension, which is undoubtedly due to toxin poison.

J. Tracy Melvin²⁷ states that the ex-

perience he has had in his last two hundred cases of croupous pneumonia has led him to be positive—if he could be positive about anything—that the conditions can be relieved by blood-letting. There are two conditions to be overcome: (1) the condition of the blood, and (2) the weakness of the heart which follows. There is abundant testimony that by the use of *veratrum viride* the course of the disease is cut short and the case convalesces two days earlier, and the whole course is milder than where this is not given. His own preference, however, is for *aconite*, which acts in the same manner. By following out this treatment he has seldom had a case last longer than five days before the crisis occurred. The next point in the therapy is to strengthen the heart so that, after the action of the *veratrum viride* or *aconite* has overcome the constriction of the vessels, the blood may be forced through them, and *strychnine* is most useful in this condition.

D. L. Burnett²⁸ considers that there are instances where bleeding is a benefit if it can be done at the proper stage of the disease, but in most cases the same results may be brought about by measures that do not tend to reduce the strength of the patient. An initial dose of a mild cathartic such as *cascara sagrada* is indicated in 90 per cent. of the cases; the first action to be taken in the line of treatment. After the bowels are thoroughly unloaded one should put the patient well under opium in some of its various forms and hold him under it for at least two or three days; with due caution, this drug may be used in the aged and in young children. The use of internal antipyretics is very seldom re-

²⁷ Jour. Amer. Med. Assoc., Mar. 2, 1901.

²⁸ Med. News, Jan. 5, 1901.

quired. Any excessive fever may, as a rule, be controlled by cold spongings, and with less depression to the patient. It might be, in some cases with a persistently high temperature, that cold-water spongings combined with small doses of coal-tar preparations would be of advantage. A clinical thermometer should be left with the family or nurse, if they are intelligent enough to be able to use it, and with the proper instructions the cold spongings may be safely left with them. The patient is to be allowed plenty of liquid drinks.

The chief organ to watch in the treatment of pneumonia is the heart. A very serviceable combination is nitroglycerin, sulphate of strychnine, spirit of camphor, aromatic spirit of ammonia, and spiritus vini gallici, to which may be added an opiate if needed. As the disease progresses the amount of the heart and respiratory tonic and stimulant treatment will probably need to be increased. The alcoholics may be well taken in milk, cold tea or coffee, and usually better sipped in small quantities at a time. It is well to be particular in regard to one point, and that is not to allow the patient to rise on his elbow either while taking nourishment or medicine or while coughing. A feeding-cup should be used for giving liquids and the patient should be made to expectorate on old cloths, which may be burned immediately. The use of expectorants, in the ordinary meaning of the term, is not to be advocated as a routine measure in the treatment of acute stages in adults. Water or liquids will render the products of inflammation less gelatinous. If the cough is more than is needed for clearing the throat and upper bronchial tubes, it may be well controlled by some preparation of opium and camphor, like Tully's powder, or by

inhalations of steam and turpentine, or creasote. Insomnia should be met without a direct recourse to opium. If due to either pain, cough, or dyspnoea, it should be treated in some of the ways already indicated; if due to the exhausted condition of the patient, by food often repeated, increased stimulation, and sponge-bathing with hot alcohol, ammonia, and water, together with dry hot flannel rubbings. Hyoscyamine, $\frac{1}{100}$ grain, will often have the desired effect, especially if there be a tendency to delirium. In delirium the same hot spongings and rubbings and increased stimulation will be of use as in the insomnia; cool or cold applications to the head are often of benefit.

A cotton jacket is very convenient for a covering to the chest; it may be easily made from old, thoroughly quilted bed-covering, cut large enough to envelop the chest front and back, notched under the arms, caught together over the shoulders, and fastened with tapes and buckles on the sides. The material should be thoroughly aired and dried before a good fire before being used.

Lime-water and milk is a valuable means of nourishment. Almost any easily-digested food is allowable if the patient desires it. In pneumonia the food should be given in small quantities and frequently. During convalescence the key-note of treatment is tonics, especially iron and strychnine, with some of the vegetable bitters. If resolution is delayed, the iodides are of use, especially that of ammonium. Codliver-oil also is of much value at this time.

In treating pneumonia in children B. A. Allan²⁹ thinks every case, so far as its management is concerned, is a law unto itself.

²⁹ Med. Age, Feb. 10, 1901.

A patient suffering from pneumonia should first be placed, if possible, in an airy, well-ventilated, and well-lighted room. If a stove is used for heat, it is important to keep a kettle of water constantly steaming, as a dry atmosphere with poor ventilation is said to deprive the patient of much needed oxygen. The clothing should be a flannel gown; the patient should be kept in bed rather than on the lap of the nurse; a cotton-batting flannel and oiled-silk jacket should envelop the entire chest after an inunction of camphorated oil and turpentine; the hips of the patient should be slightly elevated. Cold water in abundance is essential. Cold water is not only grateful to the patient, but it is what might be termed Nature's expectorant as well as beverage. Patients should take large quantities of water, either in the form of orangeade, lemonade, or pineappleade, with white of egg raw; stimulants in the form of whisky, brandy, or sherry wine, especially if the pneumonia is secondary, are quite necessary.

Patients should be treated symptomatically, or on the expectant plan. It is best to give nothing save minute doses of calomel in the beginning, followed by small doses of aconite, combined with acetate of potassium and spirit of nitre, when other remedies, such as muriate of ammonium or possibly carbonate of ammonium in the form of spirit of Minde-*rerus* might be indicated. But it is candidly believed that many cases would recover without medicine, with good nursing and proper hygienic surroundings, a mustard foot-bath, cold drinks, a dose of bromide to relieve nervousness, and a sponge-bath of alcohol or vinegar and water under cover if temperature is persistently high.

The traditional poultice has yet an

occasional place in the treatment of pneumonia in children. It may be made of flaxseed with which is incorporated a teaspoonful of mustard, and this covered with oiled silk.

The progressive trend of modern therapeutics should lead one to at least hope that serum-therapy will find a wide field of usefulness in the treatment of pneumonia in children.

Edwin Rosenthal²⁰ remarks that, as in all serum-treatment of diseases, the earlier it is used, the more certain is the result, and if used early enough in pneumonia, or at a favorable moment, it so changes the course of the disease that the different stages come close together; the process is curtailed or aborted, and, from a state of high inflammation with all its symptoms of high temperature, quick pulse, and respiration, comes a rapid crisis, the history of a favorable termination of croupous pneumonia, but brought about by the serum-treatment, within twelve to twenty-four hours instead of five to nine days.

The method of administering the serum is by hypodermic injection into the tissues of the body. In all instances the sides of the chest, and even the affected side, have been personally chosen. After the parts are thoroughly cleansed with soap and water, and then with sublimated cotton or gauze, soaked in alcohol, the serum is injected by means of an antitoxin syringe, and the aperture is closed with iodoform collodion.

The indications for its use are as follow: The temperature, pulse, and respiration should be taken as a guide, and the severity of these symptoms govern the method and size of dose and its repetition. If, for instance, the temperature be 103° F. or over, the pulse 110 or over,

²⁰ Med. News, Dec. 1, 1900.

and the respiration 48 or over, one may begin with 20 cubic centimetres; where the type is more severe, with 40 cubic centimetres of the serum, followed every four hours by double the initial injection, until the disease is under control, as manifested by a decline in temperature, a slower respiration, disappearance of pain, improvement in the pulse, and a change for the better in the general condition.

If the case be croupous in character, this method alone is sufficient, and the first twenty-four hours or perhaps forty-eight hours show the effect of the remedy. Where, however, pneumonia is secondary to another disease, the antipneumococcic serum alone is not sufficient. Therefore the injection of antipneumococcic serum should be followed in four hours by one of antistreptococcic serum.

The use of the serum does not in any way interfere with any other treatment, nor is it harmful in any quantity at any stage of the disease. At the same time suitable remedies should be employed and the method pursued with which one is most familiar. If the serum be used and additional medication be pursued, the results from such medication may not only be satisfactory, but quickened, showing the specific action. When used early,—that is, before the inflammation has become so marked as to pass the stage of resolution,—the antipneumococcic serum has no influence in curtailing the progress of the disease, and the antistreptococcic serum may be necessary to prevent the results ensuing.

A most pertinent rule must be appended to be followed by those who are not familiar with the commercial history of the serum. None of the foreign antipneumococcic serums or antistreptococcic serums are reliable, since they are too old when they reach the practitioner in

this country, it being well known that these serums do not retain their action beyond three months, under the most favorable conditions.

One must always remember that it is not the one dose nor the one bottle that will cure, but sufficient quantities must be used until results are obtained, whether this is done with one dose of 20 cubic centimetres or with twenty bottles of the remedy.

In noting the recent progress in the treatment of acute lobar pneumonia by antipneumotoxin, J. K. Crook³¹ says the progress of serum-therapy in acute lobar pneumonia cannot be said to have been particularly brilliant during the year 1900. A number of tests have been made both with cultures prepared from the blood of pneumonia patients and with animal serum, and several clinical reports are found in the literature of the year, but the net result appears to leave us about where we were one year ago. Clinical experience has been too meagre to allow of any positive deductions being made. Further than this, no apparent progress has been made in standardizing the antitoxic serum, and it is impossible up to the present time to secure a preparation possessing any positive stability.

Charles B. Canby publishes an account of the use of Pane's serum in 3 cases. The results in these cases appeared to demonstrate a high degree of value in the preparation, each case being followed by rapid recovery.

J. C. Wilson considers in detail the subject of serum-therapy in pneumonia, and reports 18 cases treated with McFarland's antipneumococcic serum in the German Hospital of Philadelphia. Of the 18 cases, 4, or 22 per cent., died. The duration of the attack in the serum

³¹ Phila. Med. Jour., Feb., 16, 1901.

cases was five to fourteen days. Defer-escence usually took place by crisis or rapid lysis. The serum was administered in all cases hypodermically, the total quantity varying from 20 cubic centimetres to 460 cubic centimetres. The immediate effects were more marked and more favorable in cases in which recently drawn serum was used than in those in which it had been drawn for a longer period. No results could be attributed to the tricoresol in the serum.

McFarland, in his discussion of Wilson's paper, stated that the serum was very difficult to cultivate and its nature uncertain. It might be antitoxic or antimicrobial, but was probably both. Alexander Lambert, however, states that the antipneumotoxic serum is not bactericidal, but bacteriolytic. He used a horse-serum by subcutaneous injection in 12 cases, with a result of 9 recoveries and 3 deaths. It seemed to cause a slight reduction of temperature and improvement in the pulse, but did not bring on a crisis in any case. In 2 alcoholic cases

the serum had absolutely no effect. Antonio Fanoni reports 6 grave cases cured with antipneumotoxic serum. In a subsequent communication the same writer states that he has successfully treated 9 additional cases by the same means. Several other writers report isolated cases treated with the serum, but their results add very little to our stock of knowledge on the subject. The study of antipneumotoxin is still in an elementary phase of development, and we must wait further progress before expressing positive opinions as to its value.

W. H. Smith³² thinks, experimentally, antipneumococcic serum seems to be of value. Practically, that it is of any great value does not at present seem to have been demonstrated, as the reported number of cases are too few; the series of any one observer too small. What the future of the serum-therapy in pneumonia will be it is too early to say.

³² Boston Med. and Surg. Jour., Oct. 4, 1900.

Cyclopædia of Current Literature.

ACUTE DISEASE, PROGNOSIS OF, AS DETERMINED BY THE CIRCULATORY ORGANS.

Accurate examination of the blood, giving data for diagnosis and prognosis, is destined in the future to take a larger place than at present in ordinary clinical work. In acute diseases pallor from blood-destruction, and a livid venous hue from ill aëration, are the most obvious blood-conditions that we watch for. In infants the livid hue is most plainly seen in the skin of the face around the mouth, and thence extending upward to include the nose. When

this tint is well marked, convulsions are not far off.

The heart is a wonderfully elastic organ, and subject to great variation of rate in acute disorders. A sudden drop from 120 to 60 beats per minute, such as is often seen at the beginning of convalescence, does not appear to incommode the patient. A heart-rate progressively increasing from day to day, though it be by only 2 or 3 beats per minute daily, is one of the most certain and sinister signs in prognosis, and sometimes gives warning of a fatal end for weeks beforehand. A pulse much

over 100 in old persons is a bad prognostic, provided one can exclude alcohol and a neurotic temperament. On the other hand, a very slow pulse in acute disease is risky, and dictates absolute rest, warmth, and stimulants. In some cases of failing circulation chilling begins at the extremities a number of hours before death. A valuable test of the reserve heart-power is to try cautiously the effect of change of posture upon the heart's action. The fatal end is often proximately caused by sudden effort on the part of the patient, such as sitting up in bed, and useful information is obtained by carefully testing the ability of the organ to bear extra strain. R. H. Fox (Edinburgh Med. Jour., Mar., 1901).

AMENORRHŒA.

Treatment.—When there is any faulty constitutional condition, this should be treated. Anæmia especially requires iron with arsenic and strychnine or nuxvomica, and as the anæmia improves menstruation is more likely to be established. As to the action of reputed emmenagogues, such as manganese dioxide, potassium permanganate, senecin, etc., the results in personal experience have not been encouraging. After a reasonable trial of drugs, if no result is obtained, it is usually advisable to examine the pelvic organs, preferably under an anæsthetic, for, if a condition of underdevelopment be present, prolonged drug treatment is futile, and is disappointing to the patient. Under these circumstances it is best to explain the condition and leave matters alone. Stimulation by electricity is usually undesirable and unnecessary in the case of single patients, though it may be tried in exceptional cases if the fact of amenorrhœa is a source of worry to the patient. The

most effective stimulus is that supplied by marriage. A. E. Giles (Clinical Jour., Jan. 30, 1901).

AMŒBA COLI, STAINING OF.

It is not a very difficult matter, where the amœba are numerous in the fæces, to obtain well-stained specimens if sufficient care is taken in their preparation.

Having found a specimen of fæces containing numerous amœbæ, the smears are prepared as follows: Several cover-glasses are thoroughly cleaned and placed in a row upon the edge of the table. With a sterilized platinum loop a small flake of mucus is picked out of the fæces and placed upon a cover-glass. This is repeated, a minute flake of mucus being placed upon every other cover-glass. The intervening clean cover-glass is then dropped gently down upon the glass containing the mucus, and then the two are slid apart, very gentle pressure being used in doing so. By proceeding in this way a dozen or more very even, thin smears can be secured in a few minutes' time. The smears are then placed face up in equal parts of alcohol and ether and allowed to harden for thirty minutes. If the fæces are warm when the preparations are made, many of the amœbæ will be hardened while undergoing amœboid motion. After hardening, the smears are ready to stain.

The smears are stained in Loeffler's alkaline methylene-blue solution for from three to eight or ten minutes; about five minutes gives the best results; they are then washed in distilled water and mounted in Canada balsam.

The amœbæ take the blue stain very well, staining almost as deeply as the nuclei of the epithelial cells. In such stained preparations three stages of the amœbæ can be detected: the smaller amœbæ staining comparatively uni-

formly; the larger ones, staining less uniformly and containing one or more vacuoles; and still larger ones, riddled with vacuoles and staining very deeply.

This much can be said to have been demonstrated by the study of stained specimens of the amœbæ:—

1. That vacuolization is a degenerative process, as the young amœbæ show no vacuoles; the full-grown healthy ones, few; while the amœbæ in which they are most numerous are degenerate bodies, showing neither a nucleus nor inclusions of any kind.

2. That there occur in all but the degenerate forms of amœbæ small, round or oval, unstained areas, uniform in appearance, and most numerous in the large, full-grown forms, and entirely absent in the vacuolated shells of amœbæ. These areas resemble similar areas observed in stained, segmenting malarial plasmodia, which are, in them, due to the young spores, which take the stain but faintly. Reasoning from analogy, it may be that these areas in the amœbæ are also spores.

3. That in the protoplasm of the amœba there occur peculiar structures, evidently not bacterial in nature, the significance of which it is impossible to decide. It may be that they are certain crystals which occur in the fæces and which have been absorbed by the amœbæ.

4. That degeneration of the amœbæ takes place in two ways: *i.e.*, by vacuolization and by fragmentation. C. F. Craig (Med. News, Mar. 16, 1901).

ASCITES, SURGICAL TREATMENT OF.

A variety of different methods have been used to produce a collateral circulation through peritoneal adhesions. The following method under local anæsthesia

or chloroform narcosis is recommended: The incision is made above the umbilicus and a little to the left of the median line, so that no injury may come to the vein in the round ligament. The liver is then inspected and palpated to confirm the diagnosis. A small opening in the median line above the pubis is made, and through this the fluid is siphoned off while the operation above is being completed. The parietal peritoneum over the omentum, liver, and spleen (if the latter organ is enlarged) is dried and gently rubbed with a gauze sponge, the same treatment being also given to the surfaces of the organs. The omentum is then stitched in two or three places with catgut to the anterior abdominal wall and the incision closed. If the operation is undertaken in a hospital, drainage may be made through the lower opening, particularly in cases where the ascites has been rapidly reaccumulating. If the surgeon has no confidence in the nursing, he should close the lower wound also and resort to tapping until such time as the collateral circulation has been established. Drainage is very useful for three or four days, until the adhesions can become firm. If the Trendelenburg table is used, the patient may be raised to a semisitting position while the ascitic fluid is being siphoned off. After the dressing is applied the abdomen should be encircled with broad adhesive straps from the ensiform cartilage to below the umbilicus, in order that the parietal peritoneum may be brought and kept in contact with the visceral.

The conclusions are *a priori* cases of cirrhosis of the liver stand injury badly, and therefore are poor subjects for operation. The resistance of their tissues is presumably much less than in health. The exact estimation of the amount of

degeneration of the various organs, including the liver, is extremely difficult or impossible, consequently the mortality of the operation under consideration would naturally be expected to be relatively high. Statistics seem to show that the operation has won a distinct place, and in the future a clearer conception of the suitability of particular cases for the operation may be possible. Without operation these patients as a class are doomed to a life of perpetual invalidism, requiring constant treatment and repeatedappings to make life bearable. Where the diagnosis of portal cirrhosis of the liver can be made, and where persistent and well-directed medical treatment is productive of insignificant results, the operation should be strongly recommended. On the other hand, it would seem that the operation is scarcely indicated, if not contra-indicated, in cases of ascites associated with other kinds of cirrhosis (Hæmotic, syphilitic, mixed, etc.) or with chronic peritonitis. F. A. Packard and R. G. le Conte (*Amer. Jour. of Med. Sciences*, Mar., 1901).

BACTERIAL TOXINS.

Experiments so far made upon the theory of the nature and action of the bacterial toxins give the following conclusions:—

1. The colon bacillus in virulent form contains within the cell a toxin which is fatal to guinea-pigs of from 200 to 300 grammes' weight in quantities of less than 1 milligramme.
2. The aqueous extract of the cells of the colon bacillus grown on agar is inert.
3. The entire germ is highly resistant to heat and to dilute acids and alkalies.
4. The cell-wall of the colon bacillus is digested by the prolonged action of artificial gastric juice, which does not alter the toxin.
- 5.

CAVITE FEVER.

The toxin as thus obtained is insoluble, or but slightly soluble, in dilute acid, but is slightly soluble in water and more readily in dilute alkalies. 6. This toxin responds to the ordinary proteid reactions. 7. The toxin, after being freed from the cell-membrane, is not destroyed by being boiled. Further research is needed to determine more definitely the nature of this toxin, and investigations must be extended to other bacteria. V. C. Vaughan and T. B. Cooley (*Jour. Amer. Med. Assoc.*, Feb. 23, 1901).

CAVITE FEVER.

Cavite fever is an acute infectious disease, characterized by an abrupt onset, high temperature, severe muscular pain, and extremely tender and painful eyeballs. The predisposing causes are high temperatures; low, damp localities; overcrowding, and possibly the close proximity of salt water. The period of incubation is two days to two weeks. The disease is of sudden onset, usually commencing with a slight chill; in a few hours the temperature rises to 104° to 105° F., and may even reach 107°.

The face is flushed; the eyes injected, extremely painful, and tender; the skin burning hot; the pulse full, strong, and rapid; the respiration accelerated, and the mind frequently delirious; the patient extremely prostrated.

Nausea and vomiting are usually present, the bowels constipated, and the urine scanty and high colored. Headache and muscular pain are severe; the latter usually located in the muscles of the back and legs, but occasionally in those of the arms and shoulders. The temperature usually continues high, for from three to five days, when it falls by crisis; the muscular pain may or may not cease with the fall of temperature.

Relapses are not common; but second, third, and even more attacks are not unusual.

This disease is most apt to be confounded with dengue, but the absence of an afebrile period, and the rash, followed by a second febrile attack of definite duration, enables one to distinguish it from that disease. The absence of catarrhal symptoms separates it from catarrhus epidemicus.

The treatment should be as follows: Rest in bed, with a liquid diet. The bowels should be freely opened by a brisk saline purge, and kept regular by small and frequently-repeated doses of calomel. Such drugs as antipyrin, phenacetin, or acetanilid, and small doses of quinine should be administered.

A good combination, which also includes the proper amount of calomel, is as follows:—

R Antipyrin, 1 drachm.

Quinini sulph., 18 grains.

Hydrarg. chlor. mit., 1 1/2 grains.

M. et ft. cap. No. xij.

Sig.: One capsule every two or three hours.

The high temperature should be controlled by sponge-baths or by "tubbing," and an ice-cap should be applied to the head. For a week or ten days after recovery, tonics—such as iron, quinine, and strychnine—should be given. B. L. Wright (Phila. Med. Jour., Feb. 9, 1901).

CHLOROSIS, HYDRIATICS IN THE TREATMENT OF.

Hydrotherapy is not advocated as an exclusive method of treatment, but its careful use in selected cases is urged as a most valuable aid. The treatment should be based on a proper conception of the principal pathological facts,

among which are the oligochromæmia, oligocythæmia, and oligæmia. Especial stress is laid on the oligæmia as not being fully recognized in dealing with chlorosis and as indicating a great impairment of the hæmatogenic organs. Because of the marked decrease in the total mass of blood which undoubtedly exists, the blood-count may be normal with a serious degree of oligæmia. The weakness of the heart, with more or less dilatation; a general lowering of the blood-pressure because of the heart conditions and vasomotor states; the resulting impairment of function of all the principal organs as a necessary result of the preceding conditions; and the retention of subcutaneous and intravisceral fat and hypoazoturia as a result of defective oxidation and lowered metabolism; and hypoplasia of cardiovascular and genital organs the common embryonic origin of which from the mesoblast is pointed out as a possibly significant fact, furnish the principal indications for therapeutic procedure.

While the administration of iron is recommended, the exceedingly small amount absorbed, coupled with the better therapeutic results claimed from tremendously large daily doses, points to an indirect action of the iron upon the alimentary tract.

The rest treatment in conjunction with iron is an important factor in permitting recuperation of cardiovascular organs and of the red bone-marrow upon which hæmatogenesis is absolutely dependent. No single therapeutic measure can so directly influence the nutrition and functional activity of the bone-marrow as hydrotherapy. Its anatomical surroundings remove it from all but indirect methods, and after supplying abundance of iron with such a degree of rest as is indicated, forced feeding and

special treatment of any organ that may need it, the indirect results of hydratic measures can favorably modify the bone-marrow in accordance with well-known physiological laws.

Various methods are available,—such as the full bath, spray, douche, etc.,—the guiding principles being to use that degree of stimulation from which the patient will show a healthy reaction, and to use cold very guardedly, and, as a rule, preceding its application by a storage of heat which will permit of the stimulating and tonic influences of cold without resulting depression. G. W. McCaskey (*Jour. Amer. Med. Assoc.*, Feb. 16, 1901).

DELIRIUM TREMENS.

Treatment.—When symptoms of delirium are manifest in chronic alcoholic patients, the sudden withdrawal of alcohol has been found to be dangerous in certain cases. If symptoms of cardiac failure assert themselves, a little alcohol must be allowed as a stimulant to the circulation. Other circulatory stimulants should be freely employed. Of these aromatic spirit of ammonia and tincture of digitalis have been found most effective. Strychnine is given hypodermically in doses of $\frac{1}{60}$ to $\frac{1}{20}$ grain, according to the necessity for stimulation. Atropine is given in doses of $\frac{1}{150}$ to $\frac{1}{5}$ grain. Where there is much excitement, sodium bromide is given in doses of 30 grains to 1 drachm; $\frac{1}{8}$ grain of morphine is given hypodermically and $\frac{1}{100}$ grain of hyosine. A wet pack proves very soothing, and its use will often obviate the necessity for the administration of strong hypnotic drugs. After the stage of excitement is past, forced feeding is the treatment especially indicated, for at least a week or ten days. At least six to eight

eggs a day should be used by convalescent alcoholics. Water should be given very freely then, and nurses should be instructed to see that at least every hour some water is offered to the patient, or a fresh supply placed beside him. The aqua ammonii acetatis may be used freely, and will be found to be very refreshing and stimulating. A. R. Braunlich (*Med. News*, Feb. 9, 1901).

The intravenous infusion of saline solution in delirium tremens accomplishes the following things: It increases the amount of the circulating medium in which the toxic materials are dissolved, thereby diluting the poison and bathing the nerve-centres with a more attenuated solution of the same. The amount of circulating fluid is increased above the normal, so that the excretion of fluids through all the fluid-excreting channels is increased, thereby carrying off in solution much of the contained toxins. The action of the heart is improved by the filling of the relaxed vessels. These suffice to restore the physiological equilibrium and turn the balance in the favor of recovery. J. P. Warbasse (*Med. News*, Mar. 2, 1901).

DISINFECTION, SICK-ROOM.

Novy's valuable directions for the disinfection of rooms are as follow:—

1. All cracks or openings in plaster or floor and about the door and windows should be closed by cotton or strips of cloth.

2. The linen, quilts, blankets, carpets, etc., should be stretched out on a line in order to expose as much surface as possible to the action of the disinfectant. They should not be thrown into a heap.

3. The walls and floor of the room and the articles in it should be thoroughly sprayed with water. If masses of matter or sputum are dried on the floor they

should be soaked with water and loosened. No vessel of water should be left within the room.

4. One hundred and fifty centimetres (5 ounces) of the commercial 40-per-cent. solution of formalin for each 1000 cubic feet of space should be placed in the distilling apparatus and as rapidly distilled as possible. The key-hole and spaces about the door should then be packed with cotton or cloth.

5. The room thus treated should remain closed at least ten hours.

If there is much leakage of gas into surrounding rooms a second or third injection of formaldehyde at intervals of two or three hours should be made. R. G. Schnee (Cleveland Med. Gaz., Mar., 1901).

ERYTHROMELALGIA.

Diagnosis. — Acroparæsthesia resembles erythromelalgia only because of the presence in both of paræsthesia and hyperæsthesia. In no other particulars are these conditions similar. Acroparæsthesia is associated with numbness and falling asleep of the fingers and formication. There are but few objective sensory disturbances; oftener there are none. There are no vascular symptoms; there is considerable motor weakness; if there is change in the color of the fingers, they are pale, not red; the hands are abnormally cold; in some cases the temperature is reduced from $1\frac{1}{2}^{\circ}$ to 2° C. Friction, walking, and movement of the parts reduce the discomfort, while in erythromelalgia these aggravate the torture. There is greater intermission in the symptoms in acroparæsthesia, while in erythromelalgia they finally become continuous; in erythromelalgia the reflexes are exaggerated, while in acroparæsthesia they are normal. The vascular storm is absent in the latter; decidedly in evi-

dence in the former. Of 162 cases of acroparæsthesia 150 were women; only 12 were men. The majority of cases of erythromelalgia are found in men. Acroparæsthesia affects anæmic, cachectic, and overworked adults; in middle life and women at the climateric, particularly those who work in cold water. In erythromelalgia there are, besides the predilection of the disease to attack the lower extremities, complications referable to the digestive system, with far-reaching central, spinal, or peripheral changes in many cases. H. L. Elsner (Med. News, Mar. 16, 1901).

FÆCAL IMPACTION.

The treatment in cases of fæcal impaction is usually satisfactory, but must be changed to suit the individual case. When the accumulation is small, not too dense, and is located in the lower rectum, it can always be softened and evacuated by frequent copious enemata of warm soap-suds containing oil and glycerin. The following is a very satisfactory combination:—

R Soap-suds, 1 pint.
Castor-oil, 1 ounce.
Glycerin, 2 ounces.

Inject into the rectum every two hours; to be retained as long as possible.

If the mass has been in the rectum some time, is large, round, or hard and nodular, more radical measures are indicated, for in such cases the tumor is covered with a slimy mucus, and water will not permeate it. Here it is necessary to break up the accumulation into small particles, then irrigation will enable the patient to evacuate them. This can be done with the fingers, a spoon-handle, or with rectal forceps. Where the mass has been present a considerable

time, causing dangerous symptoms of occlusion, the sphincter-muscle should be divulsed under general anæsthesia, and the tumor delivered at once whole or in sections. When located in the sigmoid and colon, a copious injection of the formula previously named should be thrown high into the bowel by means of the long rubber colon tube. Occasionally the fæces will be discharged in short order. Again, the treatment must be continued one, two, or three days, and sometimes a week, before the accumulation will be completely evacuated. Massage is a valuable agent in these cases, and, when practiced in an intelligent manner, faecal tumors in any part of the intestine may be dislodged, broken up, and pushed downward until they can be removed with the finger or washed out with enemata. Now and then all palliative measures fail, and it becomes necessary to open the abdomen and make sigmoidotomy or a colotomy, and deliver the mass when possible, and in pieces, when it cannot be avoided. When the impaction is caused by a stricture or tumor which cannot be removed, a permanent artificial anus should be established, adhesions should be broken up, and the wounds in both the intestine and abdomen should be closed immediately. Purgatives are always contra-indicated in these cases, because the obstruction is purely mechanical. S. G. Gant (Post-graduate, Jan., 1901).

HÆMORRHAGE IN TUBERCULOSIS.

Treatment.—Hæmorrhage will subside spontaneously in nine out of ten cases, if the patient be put at rest. Cold applications are generally useful, an ice-bag being applied over the heart, or over the seat of bleeding, if that can be located without undue disturbance to the patient. Cold food only is to be given, and

in small quantities. Use of the voice is to be interdicted, and laxatives should be given to prevent straining at stool. When necessary, the force of the heart's action can be reduced by aconite in appropriate doses, and cough be checked by opium, codeine, or morphine. It is possible that heroin may serve better than the natural morphine. In severe cases morphine may be given hypodermically up to the point of tolerance. The most generally useful drug to promote coagulation of blood and the formation of permanent clot, sealing the wound in the vessel or vessels, is crystallized calcium chloride. With this, codeine, turpentine, or thymus extract may be associated. The calcium salt is to be given in dilute solution in comparatively large doses,—say, 15 grains every second hour,—for not more than four days consecutively. If medication is still necessary, lead acetate may then be given,—say, 3 or 5 grains in pill with an equal quantity of tannic acid and perhaps a grain of opium,—three or four times daily. After two or three days aromatic sulphuric acid should then be given, after which, if necessary, the calcium salt may be resumed. Ergot is useless in most cases. Atropine sulphate, $\frac{1}{120}$ grain, given hypodermically, at the beginning of hæmorrhage will often cut it short. Hydrastinine hydrochlorate is a useful astringent. S. Solis-Cohen (Jour. Amer. Med. Assoc., Feb. 23, 1901).

HYDROCELE.

Treatment.—The principle of inversion or eversion of the tunica vaginalis differs absolutely from that of total excision; instead of removing the serosa, it is retained, and turned inside out, thus destroying the secreting serous sac. The secreting surface becomes external, and the secretion is

absorbed as it forms. The operation of inversion of the tunica vaginalis is performed as follows: Under local or general anæsthesia, an incision is made down to the fibro-serous layer. The length of the incision varies necessarily with the dimensions and position of the hydrocele. The tumor, still unopened, is then dissected by means of gauze or the finger, until the mass is free from the cellular layer, especially posteriorly. All bleeding must be checked at this stage by hæmostats or ligatures. A long incision is then made in the sac, from which the liquid escapes. The tunica is then turned inside out, placing the endothelial surface outward, and securing the cut edges of the serosa as high as possible around the cord by means of two or three catgut sutures. The testicle is then replaced in its normal position. It is covered by the skin, dartos, and cellular tissue. Suture of the skin without drainage completes the operation, which requires generally from five to ten minutes.

A very mild local reaction, and, exceptionally, some tenderness over the testicle, may be noted during the first two or three days. Dudley Tait (*Annals of Surg.*, Mar., 1901).

HYSTERECTOMY FOR ACUTE BACTERÆMIA.

It is impossible, with our present knowledge, to lay down absolute rules for the performance or omission of the operation of hysterectomy, but for general guidance the following indications are advised for hysterectomy, if it appears evident that less heroic treatment is useless:—

1. If, after a full-term delivery or an abortion, there are no conception-products in the uterus and the patient has fever with exacerbations, chills, a

small and frequent pulse (120 to 140 or more); if careful observation should show that the infection comes from the uterus alone, that organ being enlarged, and relaxed in its consistency; if there is no evidence of peritonitis, the parametria free; if streptococci are found in the uterus; and, especially, if the blood shows the presence of pathogenic germs.

2. If there are decomposition-products in the uterus—as in the instances reported by Schultze, Prochownik, Stahl, and others—which cannot be removed satisfactorily per vaginam; if on doing a Cæsarean section the uterus is found septic, then an abdominal hysterectomy is indicated. Abdominal section with drainage is indicated in diffuse septic peritonitis, when there is no evidence of an exudate in the pelvis. The adnexa are to be left undisturbed unless there is positive indication to do otherwise. H. J. Boldt (*Phila. Med. Jour.*, Feb. 16, 1901).

INFLUENZA.

Treatment.—For the relief of the general aching which occurs at the beginning of infectious diseases aconite is the best drug. After aconite the drug that gives most relief is Dover's powder. With these should be combined some one of the coal-tar analgesics, and phenacetin has proved the most useful. A good prescription is the following:—

R̄ Aconite, solid extract, 1 to 6 grains.
Dover's powder, 1 grain.
Phenacetin, 8 grains.
Quinine, 6 grains.

This is sufficient for two pills. Of these pills, 6 should be taken the first day and each succeeding day until the fever subsides. Then 3 should be taken every day, until all the catarrhal symp-

toms have disappeared. It is a characteristic of grip to produce painful affections of the accessory sinuses, and the supra-orbital pain which results from this is often almost unbearable. The best remedy for these is a drachm of ergot given every three hours in combination with a drachm of cinchona. Ergot is the ideal remedy for periodical neuralgias. When quinine and Warburg's tincture have failed to give relief, it often proves of immediate service.

For the prostration which so often accompanies grip, fluid extract of coca with nux vomica constitutes the best remedy. W. H. Thomson (*Med. News*, Feb. 23, 1901).

INTESTINES, ACUTE CATARRH OF THE.

Treatment.—In acute enteric catarrh the indications are first to remove promptly and thoroughly the noxious cause, and next to give as complete rest as possible to the temporarily crippled digestive system. For the laxative, a saline or castor-oil in not too large a dose (say, 1 to 4 teaspoonfuls of the latter) usually prove efficient, but no single remedy acts so magically as a mild mercurial purge, preferably calomel in the dose of $\frac{1}{20}$ to $\frac{1}{6}$ grain according to the age, mixed with a grain of sugar of milk and repeated every half-hour, until a favorable change of color appears in the stools. Not more than six to ten doses should be needed to restore the normal dark-yellow color. At the same time the digestive system should be allowed to rest, the food being either wholly stopped for a day or two or (when this is impracticable) limited to the lightest possible articles, such as a few spoonfuls at a time of toast-water, egg-water, or rice-water in babies, and very small feedings in adults of wine, whey,

or the weakest broths. If by the second day, with such a treatment, the patient is not well, or so nearly so that manifestly nothing further is needed beyond a day or two more of functional rest through a severely restricted diet, one may administer one-half the former dose of calomel every two or three hours for one day longer. If there should then be still a tendency toward diarrhoea, it would indicate either an exceptionally severe infection or that there had been previously a chronic catarrh, involving portions of the intestines and often the stomach as well. Some one of the bismuth preparations, given in a simple mixture of mint-water and lime-water after every stool, should then prove efficient in controlling the remains of the diarrhoea. The following formula usually does well:—

R Bismuth subnitrat., 3 drachms.
Tannalbin, 5 drachms.
Mist. cretæ, q. s. ad 4 ounces.

M. Sig.: One-half to two teaspoonfuls, according to age, after every loose stool.

When much pain or frequent loose movements persist, the foregoing prescription may prove more rapidly effective with a few drops of paregoric or deodorized tincture of opium added to each dose.

To give an astringent before the bowels have been thoroughly emptied is never useful or justifiable, but always harmful and sometimes disastrous. The early use of opiates should be equally avoided, except in the presence of intolerable pain, and even then a further gentle use of laxatives in addition to antacids, combined—if need be—with an antispasmodic, such as the annexed prescription calls for, is generally all sufficient and far safer:—

R. Tr. cardam. comp., 4 drachms.
 Spt. ammon. arom., 3 drachms.
 Spt. chloroform., q. s. ad 1 ounce.

M. Sig.: Teaspoonful in half-glass of hot water every hour or two till relief.

When the colon is solely or chiefly involved, cleansing from below by irrigations with saline, soothing, and antiseptic solutions sometimes offers advantages, especially in proctitis, though in chronic colitis these local measures play a more important rôle than in the acute form.

The diet for the exceptional cases that linger on longer, in spite of the treatment above laid down, should comprise, mainly, thoroughly fresh milk boiled and mixed with lime-water or peptonized and in children properly diluted and modified to approximate it to human milk, fresh beef-juice pressed out of a broiled steak, soft-boiled or poached eggs, or egg-water for children, Eskay's food, or plasmon, bovine, whey, koumiss, and later chopped beef, toasted bread, zwieback, boiled rice, and the best of the various biscuits (crackers) on the market. All the vegetables and fruits should be avoided. When the gastric juice is found deficient, HCl and pepsin may be given, especially when the diet is increased. In the cases in which there is an absence of gastric secretion, with atrophy of the glands, the preparations of pancreas may be administered hopefully with or after food. When the hydrochloric-acid secretion is excessive, on the other hand, the preparations of chalk and bismuth should be administered with nitrate of silver and, if need be, belladonna, but never opium, which increases the secretion. Boardman Reed (*Inter. Med. Mag.*, Feb., 1901).

KNEE-JOINTS, QUIET EFFUSION INTO THE.

Passive effusion into the joint rarely

occurs in any other joint than the knee, although personally seen on one occasion in the ankle. The joints of the opposite sides are usually involved at the same time, but the effusion is, as a rule, much more marked on one side than on the other, that on the right side being generally the greater. There is rarely any pain unless some injury has been received; beyond a feeling sometimes of weakness, there is nothing to attract attention to the matter. It is limited to girls and women, and is always associated with menstrual irregularity or uterine trouble. It occurs mainly at two periods of life, viz.: at the time of puberty, when the catamenial affairs are establishing themselves, and at the climacteric time, when menstruation begins to cease. It may, however, occur at any intermediate period if there is menorrhagia, excessive hæmorrhage from the uterus, or great irregularity and difficulty in connection with the menstrual affairs.

The character of the joint is peculiar; although containing a considerable amount of fluid, it is never tense, excepting after superadded injury. The fluid, if the patient is standing, sinks to the lower part of the joint-cavity and sometimes leads to a pouch-like overhanging of the synovial membrane at its lower anterior aspect. The patients are usually anæmic, but not invariably so.

The common cause of the discovery of the condition is an injury, generally very slight, such as a twist or fall; the occurrence of an injury and the existence of effusion naturally lead to a diagnosis of traumatic synovitis, which, being apparently of a very chronic nature and occurring in subjects of a delicate type, is sometimes mistaken for tuberculous disease: a mistake of some importance. Any error in diagnosis can usually be

avoided by noticing the character of the swelling, the existence of effusion on both sides (that on the uninjured side being painless and without heat), and the coincidence of marked menstrual or uterine trouble.

The prognosis in these cases, if treated on the lines indicated, is always good, provided that the primary cause of the effusion can be cured, in which case recovery invariably follows unless the condition has persisted so long as to produce permanent changes in the joint. In cases where the effusion is continuous or is constantly recurring an increasing weakness of the knees occur, and in the later stages, when the health becomes broken down by frequent loss of blood or great pain, cedema of the legs sooner or later follows; but in this there is no specific meaning, since it is merely the result of continual exhausting illness.

The primary treatment should be directed to the correction of the faulty functions, while moderate exercise and massage for the knees, combined with the healthiest of out-door lives, are collateral indications—beyond everything, splints of any kind should be avoided, and on no account should the patient be allowed to lead an invalid's life unless the loss of blood, pain, etc., render this absolutely unavoidable. In the absence of acute symptoms arising from injury the condition of the knees need lead to no restriction in the exercise of an ordinary person. W. H. Bennett (*Lancet*, Feb. 23, 1901).

LIP, CARCINOMA OF THE.

A carcinoma of the lip in an individual over forty is ordinarily, as Broca shows, more malignant than a cancer of the skin, and less malignant than a cancer of the tongue. The farther inward on the epithelial surface the growth

begins, the more malignant it is, as a rule.

The cancer may first appear as a fissure with hard edges, which declines to heal; as a slowly developing ulcer with hard edges, which refuses to cicatrize; as a hard papule in the mucous membrane, which does not ulcerate for a considerable time; or as an eczematous-looking surface, which weeps and crusts, and is covered with papillomatous projections. The first three forms spread deeply under the epithelium and involve the muscle of the lip comparatively early; the last-mentioned form is superficial, and does not involve the muscle until late. The first three forms are more malignant than the last form, although the papule may remain inactive or latent for a considerable length of time. The sooner the muscle of the lip is involved, the more malignant is the growth.

In whatever form cancer starts, even if it is not ulcerated from the beginning, it sooner or later ulcerates, and the characteristic epitheliomatous ulcer forms. In its earliest stages this ulcer is apt to be concealed by a crust; and, if the crust is picked off, the raw surface is exposed. The discharge of an epitheliomatous ulcer is thin, reddish sero-pus, which is irritating to the surrounding healthy skin and mucous membrane.

The only proper treatment for cancer of the lip is radical extirpation at the earliest possible moment, associated with removal of the anatomically related lymphatic glands. J. C. Da Costa (*Ther. Gaz.*, Feb. 15, 1901).

LIVER, RESECTION OF.

Where resection of the liver is to be done, a longitudinal incision will sometimes be sufficient; but when this is not the case another incision should be made

parallel to the costal border, the length of it varying according to circumstances. Hæmorrhage from the hepatic parenchyma may in many cases be avoided if the part is extirpated with the thermocautery with or without the previous application of ligatures in the liver-substance. If there is much oozing, the stump may be sutured to the abdominal incision and the wound packed with gauze. Other methods for stopping hæmorrhage have also been recommended, such as packing the wound with iodoform gauze or the use of Esmarch's rubber tube. Suture ligatures have also been favorably employed; they are inserted by blunt round needles in the form of chain-sutures, and by firm and gradual tension they completely close bleeding vessels. This method has of late been highly recommended by Au-
vray, who experimented with this method on human livers removed as soon as possible after death. Langenbuch advised temporary ligation of the portal vein with or without a temporary ligature of the superior and inferior mesenteric artery, but in the vast majority of cases resection with the thermocautery will be found sufficient. C. G. Cumston (Med. News, Feb. 23, 1901).

METRORRHAGIA.

Treatment.—The question of the treatment of metrorrhagia depends very largely on its etiology. As the most usual immediate cause is a chronic hypertrophic endometritis, curettage—followed by endeavors to relieve the chronic congestion—is usually the best treatment.

When due to an acute endometritis, cleanliness, drainage, and rest usually give the best results.

The treatment of metrorrhagia due to interference with the muscular contrac-

tion of either the uterine wall or the uterine vessels depends upon the presence or absence of an hypertrophied endometrium. The presence of the latter indicates curettage, perhaps several times repeated.

Metrorrhagia, with an absence of hypertrophied endometrium, or persistent after repeated curettage, may justify hysterectomy. E. B. Craig (N. Y. Med. Jour., Mar. 2, 1901).

PARALYSIS AGITANS.

Treatment.—The drugs found of decided value in the palliative treatment of paralysis agitans are hyosine hydrobromate, duboisine sulphate, and hyoscyamine.

Hyosine hydrobromate is the most useful. Hyosine is a very powerful drug, and it is important to be very cautious with respect to the dose and mode of administration. It is best to give the drug by mouth in paralysis agitans. At first the dose should not be more than $\frac{1}{150}$ grain. This may be increased up to $\frac{1}{100}$ grain. If no toxic symptoms appear, such as marked dryness of the throat and dilated pupils, the dose may be cautiously increased. In paralysis agitans the dose may often be increased up to $\frac{1}{75}$, $\frac{1}{55}$, or even $\frac{1}{48}$ grain without bad effects, except dryness of the throat. But such large doses should only be given when the patient is in hospital, or can be very carefully and frequently watched. Merek's hyosine hydrobromate is the best. It is important to always use the same preparation of hyosine, as probably the strengths of different preparations vary somewhat. It is best to give the hyosine well diluted in chloroform-water. A prescription which is useful is $\frac{1}{8}$ grain of hyosine hydrobromate in 6 ounces of chloroform-water. At first 2 teaspoonfuls of this may be

given, then 3, 4, or 5 teaspoonfuls. If necessary, the dose may be increased to 6 teaspoonfuls ($\frac{1}{64}$ grain), providing toxic symptoms are not produced. The hyoscine is best given in the morning, just after breakfast, and again in the evening, just before going to bed, if the patient is troubled with restlessness and sleeplessness during the night. R. T. Williamson (Med. Chronicle, Feb., 1901).

PELVIC AND ABDOMINAL SURGERY, COMBINED OPERATIONS IN.

In summing up the evidence in favor of combined operations, it may be said, experience has demonstrated, on the one hand, that several operations performed at the same sitting do not compromise the life of the patient to any appreciable degree: that the extra time, within reasonable limits, required for the execution of the various procedures does not necessarily augment the dangers to be anticipated from any surgical act; that repair in the individual parts involved goes on as uninterruptedly and successfully and that convalescence is as rapid and satisfactory as when but a single uncomplicated operation is performed. While, on the other hand, following the passing of the ordeal, the patient's mind remains tranquil and undisturbed by the dread of possible future treatment and the fear of the anæsthetic, convalescence is not retarded by the presence of morbid structures or conditions left behind, and recovery is not partial, but total and complete.

Therefore, in every instance, whatever is necessary should be done, whether the conditions lie within the pelvis, the abdomen, or both; and the limit of execution should be gauged only by the general condition of the patient, her behavior under the anæsthetic, and the inherent dangers of the operations to be

performed. These, together with experience, skillful operating, strict asepticism, and watchful care of the patient, are the *sine qua non* of success. W. P. Manton (Phila. Med. Jour., Mar. 2, 1901).

PELVIS, VERSION OF.

Diagnosis.—In order to diagnose version of the pelvis, a piece of tape should be pinned to the floor, and the patient arranged so that the heels touch its edge. Garments must be dropped to a little below the level of the trochanters. The surgeon then holds some straight rod or sufficiently narrow slip of wood about two or three feet long horizontally, and places its edge in equable contact against the patient's glutei, then stooping his head so that with the right eye he can look along the spine from between the scapulæ downward. In this position he notes whether his rod lies parallel to the tape or cuts it at an angle somewhere between the heels, one end lying behind, the other in front of the white line, in which case the pelvis is verted toward the side on which the rod is posterior.

Version is also present while sitting, and here, too, the diagnosis is easy. A long ruler, as above specified, may be held parallel to the seat of the chair against the glutei, and the presence or absence of obliquity noted; for this undressing is not necessary, though, lest variations of thickness deceive, the skirts should be removed or turned down. A surer way is to take the knees as indices. Behind the patient (in drill posture) a chair is placed; she is told on no account to look around, but to sit straight down and keep the feet still; the knee-joints therefore will be bent at a right angle, and in well-marked cases the one will be felt or seen to lie considerably in front of the other; or, and

this should always be done, when by the unassisted eye inequality cannot be distinctly verified, a straight-edge placed on the upper part of the patella ligaments will, by its obliquity, indicate the forward position of one knee, signifying that one acetabulum—*i.e.*, one side of the pelvis—is in front of the other. Richard Barwell (Edinburgh Med. Jour., Feb., 1901).

RECTUM, RESECTION OF, PER VAGINAM.

The advantages offered by the vaginal route are:—

1. The sacrum and posterior bony wall of the pelvis are not disturbed.

2. The field of operation is as extensive and the anatomical parts as accessible as in the transsacral operations.

3. The peritoneal cavity is opened in both the vaginal and sacral operations, and in neither is it a source of great danger.

4. The diseased tissue is more accessible for inspection, and the extent to which the operation may be carried in an upward direction is as great, if not greater, than by the sacral route.

5. The peritoneum may be drained freely through the vagina.

6. A perfect end-to-end approximation, either by suture or by the use of the button, may be secured. The preferable method of uniting the two ends is by interrupted sutures of silk, because, as there is no peritoneum on the sphincteric segment, failure of union with the button is to be feared.

7. The sphincter is retained and the perineal body is restored. There is diminished action of the levator ani muscle.

8. When the operation is complete, the parts are practically in their normal

positions. M. H. Fussell (Phila. Med. Jour., Feb. 23, 1901).

RHINITIS, ACUTE CATARRHAL (CORYZA).

Rapid and thorough elimination is the keystone of the therapeutic arch in acute catarrhal rhinitis. The principal features of this plan of treatment are active catharsis, a greatly restricted diet, the most vigorous out-door and in-door exercise that the patient can take, and a hot bath every night. Aside from the cathartic, internal medication should be limited to the alkalies and the salicylates.

Nothing can be more ill-judged than the routine use of the "rhinitis" and "coryza" tablets that are now having such a vogue.

The local treatment will vary somewhat with the stage of the disease. During the period of acute tumefaction of the turbinates and profuse serous rhinorrhœa, when there is frequent sneezing and the eyes are flooded with tears, the applications should be as soothing as possible. A few drops of a 2-per-cent. solution of cocaine may first be sprayed upon the engorged tissues, and, after a minute or two, be followed by one of the alkaline sprays, of which Dobell's solution is the one most widely and favorably known. This having been repeated once or twice and the nose well cleansed, the treatment may be concluded by using in an atomizer a solution of recent introduction. This is a combination of the extract of the suprarenal capsule with chloretone. It is a perfectly safe solution to place in the hands of the patient for home use. If he be instructed to first cleanse the nose and naso-pharynx with the Dobell solution and then to follow it with a spray of this adrenal-

chlortone combination, he need endure very little of the discomfort that usually attends an acute coryza.

On the third or fourth day, when the mucous glands again add their secretion to the discharge and the rapid epithelial desquamation gives it a muco-purulent character, the cleansing of the nose may be succeeded by a spray of the distilled extract of hamamelis, 1 part to 3 of water.

With care and favoring conditions, a day or two more will bring the attack to that point where the active hyperæmia has disappeared and left in its wake a sluggish venous congestion that, if left to itself, is apt to be slow in departing. At this period a gentle stimulant of some kind may supplant the astringent, and a very excellent formula is "Boulton's solution." This is prepared as follows:—

R Tr. iodin. comp., 1 drachm.
Acid. carbol., cryst., 18 grains.
Glycerini, 2 1/2 ounces.
Aq. dest., 2 ounces.

M. Place in water-bath of 100° in tightly corked bottle until colorless. Filter.

It may be used either in spray form or by means of the cotton-tipped applicator. C. P. Grayson (Ther. Gaz., Feb. 15, 1901).

STOMACH, CARCINOMA OF THE.

In all cases of continued gastric disturbances that do not yield to medical treatment a careful examination and experiment should be made as to the possibility of malignancy being present.

Whether a positive diagnosis of malignancy is made or not, the patient continuing to emaciate, suffering more and more, an exploration should be done, and if there is no malignant growth a

gastro-intestinal anastomosis should be made, along the lines suggested by Dr. Weir.

Malignant growths in the posterior wall of the stomach are certainly more difficult of diagnosis, and sometimes escape the notice of the most careful diagnostician.

When an exploratory incision has been made and the growth is found to be in the posterior wall of the stomach, malignant in character, with no possibility of removal by resection or otherwise, although quite deep, yet the patient should not be refused the benefit of a gastro-intestinal anastomosis.

In all of these cases the blood should be carefully examined, as part of the history of the patient, in order to learn of such conditions as may have a bearing upon the nature of the growth. Albert Vander Veer (N. Y. Med. Jour., Mar. 2, 1901).

SUGAR, TEST FOR.

A new test for sugar is to take about 20 drops of urine in a test-tube and add a small amount (about 1/10 gramme) of pure hydrochloride of phenylhydrazin, about 1/2 gramme of crystallized sodium acetate, and 2 cubic centimetres of water. This is heated over a flame until it boils, then 10 cubic centimetres of a 10-per-cent. sodium-hydrate solution is added, the tube being inverted five or six times and then stood aside. After a few seconds a striking reddish-violet color should make its appearance. The color is seen by holding the test-tube up to the light, when the whole fluid should be colored, not merely the deposit upon the bottom of the tube. The color should appear within five minutes. E. Rieglar (Deut. med. Woch., Jan. 17, 1901).

SUPRARENAL CAPSULE AS AN HÆMOSTATIC.

The successful use of the extract depends very much on the preparation employed. For local use a solution, which is efficient when applied to the normal mucous membranes of the eye or nose, should make it white in less than one minute. Satisfactory results have been obtained with the following: One part of the dried and powdered gland mixed with 10 parts of water. This forms an emulsion which has been successfully employed to control or prevent hæmorrhage after operations on the nose and urethra. It is important that the mixture be freshly prepared, as it soon spoils; sometimes in two hours. For use in the eye or ear the emulsion should be filtered. The solution may be sterilized by heat without losing its efficiency.

For internal administration to control hæmorrhage the dried and powdered gland is efficient; it keeps indefinitely. Tablets are useless. Solutions of the extract prepared from the dried gland and from the alkaloid are also satisfactory in controlling hæmorrhage from the internal coats of the eye, and hæmorrhage from the lungs, stomach, and uterus. One does not need to use the hypodermic method, as all the preparations are absorbed by the mucous membrane of the tongue immediately, and the effect follows in less than one minute. W. H. Bates (*Med. Record*, Feb. 9, 1901).

TUBERCLE BACILLUS, RELATION OF THE FORM OF, TO THE CLINICAL ASPECTS OF PULMONARY TUBERCULOSIS.

When studied in sputum, tubercle bacilli appear to present the following well-marked varieties of form, with more or

less complete graduations between: (1) a very short, relatively-broad rod; (2) a long form represented by a chain of rods; (3) a long form homogeneous in structure; (4) a long form of a beaded appearance, as if composed of a string of spores.

It is personally thought that the form of the tubercle bacillus, as it is demonstrated in the sputum, is an important indication of the virulence of the tuberculous process, and it is suggested that it is a useful guide to prognosis.

The short, deeply-staining rod or chain of rods of moderate length is the usual form in many active cases. The long rods, particularly if irregularly broken, betoken a milder process, and the chains of spore-like beads characterize the very chronic cases which make one wonder at their tenacious hold on life. If there be a good form of the tubercle bacillus, it is a rather long, slender rod, ill-staining or staining irregularly, as if the body of the microbe were irregularly corroded on the sides. It is found in cases apparently passing on to cure. Sputa of the same individuals examined month after month have seemed to vary in their bacillary characters with the state of the patient as regards the disease. Henry Sewell (*Med. News*, Mar. 16, 1901).

TYPHOID FEVER, TENDON-REFLEXES IN.

In a study of the tendon-reflexes in typhoid fever it has been found that in 32 cases out of 100 they are exaggerated; in 22 out of 100 they undergo no change; they are diminished in 17 cases out of 100, and abolished in 29 out of 100. The preservation of the normal reflexes are noted especially in the benign cases and these with pronounced gastric symp-

toms. During the course of convalescence a marked tendency to exaggeration of the reflexes was observed. The epileptoid trembling of the feet was found in 20 cases out of 100, but it was less frequent than the exaggeration of the patellar reflex. This tremulousness was observed especially after repeated percussion of the patellar tendon. This condition does not seem to manifest itself at the drop of the temperature, but often coincides with profuse sweats and polyuria and appears to deserve notice as a true critical phenomenon. The percussion of the tendon of Achilles sometimes provokes in typhoid fever an epileptoid trembling of the foot. The epileptoid trembling of the knee is not unusual in typhoid fever. P. Remlinger (*Revue de Méd.*, Jan. 10, 1901).

VARICOCELE, VARIETIES OF.

Varicoceles vary a great deal in different subjects, the main variation being in the size of the veins. One variety is composed simply of very large veins passing down from the inguinal canal and the external abdominal ring to the testicle, the veins reaching sometimes to a very large size. It is to this particular variety of varicocele that the comparison to a bag of worms is applied. This is the commonest form of varicocele, and in the absence of injury it is generally harmless. Injury may, of course, lead to thrombosis and to other evils, like those which may follow injury to veins

elsewhere. In the second kind the veins are small and exceedingly numerous; they may in a dissection be counted by hundreds, and they are massed around the testicle, the upper part of the cord being practically normal, the appearance at first sight resembling merely a very large testicle. These masses of veins of the smaller sort clustered around the testicle are more commonly associated with defective growth of that organ than the larger ones. In the case of the large vein form of varicocele difference in the size of opposite testicles is the exception, although it sometimes occurs, but in the small vein variety the testicle on the side affected is generally smaller than that on the other side. These small testicles in varicocele are not wasted testicles; they are not shrunk, but they are testicles which have been checked in their growth. There is no atrophy of the testicle, because it has never grown; there has been arrest of growth at the period of puberty in consequence of interference with nutrition, the result of the abnormal growth of veins.

There is no reason at all why a man who suffers from the large vein varicoceles should be considered to have any physical defect apart from liability to injury. The patients, on the other hand, who suffer from the small vein sort have a defect which is liable to be followed by trouble; it therefore should receive consideration. W. H. Bennett (*Brit. Med. Jour.*, Mar. 2, 1901).

Book Review.

MANUAL OF THE DISEASES OF CHILDREN. By John Madison Taylor, A.M., M.D., and William H. Wells, M.D. Second Edition, Thoroughly Revised and Enlarged. Illustrated. Published by P. Blakiston's Son & Co., Philadelphia, 1901.

We are in receipt of the second edition of this work. The first edition of this work appeared as a modest manual covering somewhat thoroughly the whole subject of disease as it occurs in children. The second edition appears after two years, in a very much enlarged and improved shape, printed upon much better paper, on a large page (it is now an octavo of

850 pages), and, as the writers claim in the preface to this second edition, entirely revised and rewritten, with a number of new chapters and special articles added. It is also stated that a number of well-known specialists and others have assisted the authors in the revision and enlargement. We note, for example, that the chapter on "Diseases of the Blood" is now of most respectable size, and quite thorough in scope. An excellent chapter on "Diseases of the Ear in Children" has been prepared by Dr. George C. Stout, and the chapter on "Diseases of the Skin" is increased very much by the assistance of Dr. C. N. Davis. Elsewhere improvements are noted: marked amplification in the chapter on "Feeding and Food for Infants and Children," which has been brought thoroughly up to date; the one on "Diseases of the Digestive Organs" is greatly increased and carefully revised.

Considerable additions have been made under "Diseases of the Genito-Urinary System," especially in the line of urinalysis. The chapter on "Diseases of the Nervous System" is unusually complete for a book of this size, and to it have been added several articles not appearing before.

The illustrations are not many, nor indeed does a text-book on medicine require a large number of pictures. It is quite proper that a manual designed to be a complete, but moderate-sized, text-book should not have valuable space occupied by an excess of illustrations which are often to be found in the other text-books whose size is due to these and other matters not essential. The length and scope of the articles are fairly symmetrical, evident care being given to present as much of each subject as is warranted, and no more. The purpose of the publishers is clearly to keep the book down to a comfortable size and a moderate price, which has been done. A careful scrutiny will show that few subjects have been treated slightly, and the student or practitioner of medicine will find a pretty thorough presentation of the important subjects under each heading.

Treatment has been given marked prominence, and the articles under that caption are about as long as these found in the larger text-books, and fairly represent modern thought and teaching. Here the authors have taken pains to enumerate relatively few drugs, but to be explicit in their suggestions as to how those mentioned shall be used, and then to touch somewhat fully upon other measures recommended, in which they feel confidence, but claim less personal familiarity. The recommendations are all distinctly conservative, and yet abundantly positive where required.

Symptomatology has next received the most conspicuous attention, and it has been the endeavor of the authors to make it clear and adequate. There is no attempt to elaborate the views of the authors, other than to offer them succinctly, without statistical presentation of their own work.

The general appearance of the book from the stand-point of the publishers is thoroughly good, the paper being of excellent quality and the print clear and bright. The binding also is admirable, and it altogether presents a most attractive appearance. The index is peculiarly complete; the "Table of Contents" is elaborate, and presents in clear outline all the subject-material of the book in such form as will be found convenient to the reader.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Transactions of the American Climatological Association. For the Year 1900. Volume xvi.
—Fifteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Volumes I and II, 1900.—Sixteenth Annual Report of the Bureau of Animal Industry for the Year 1899. U. S. Department of Agriculture, Washington, D. C., 1900.—Home-modification of Cows' Milk. Mellin's Food Company, Boston, Mass., 1900.
—Third Report of the Committee of Inspection Appointed by the Executive Committee of the Post-graduate Medical School to Review the Experiments of Dr. John F. Russell in the Treatment of Pulmonary Tuberculosis at the Post-graduate Hospital, New York, February, 1901.

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Cyclopædia of the Year's Literature.

EPILEPSY.

Diagnosis. — H. Campbell Thomson,¹ in summing up the nature and significance of reminiscences, says that, although they are common in apparently healthy people, their occurrence must be looked upon as abnormal, and probably

due to a localized discharge of nervous energy.

That undue or sudden increase in the frequency or intensity of sensations should be viewed with suspicion, and

¹ Practitioner, Sept., 1900.

should lead to careful inquiry for any other suspicious symptoms.

That their association with any other slight symptoms of epilepsy, which, although they be so trivial as to almost pass unnoticed by the patient, is of the utmost importance, and will often enable an accurate diagnosis to be made and early treatment to be adopted.

Treatment.—L. Pierce Clark² remarks that it is not the single drug, nor any of its possible combinations; it is not the dietary alone, nor is it the out-of-door country-life that may be prescribed for the epileptic, but it is the combination of them all, unremittingly carried out for years, that ameliorates the epileptic state.

The greatest single drug in the treatment of epilepsy is some bromide salt. If the patients are anæmic and in poor physique, they must be built up while bromides are administered. Iron tonics and codliver-oil should be given to epileptics. In this adjuvant treatment a peptonized manganese of iron and hydroleine are very good. The bromides should be given as early in the disease as possible. The well-known bromide formula, made with simple elixir, is of value; it contains 5 grains each of potassium, sodium, and ammonium bromide to the teaspoonful. The patient should begin on 1 drachm a day at the outset, given night or morning according to whichever end of the day the seizures occur most frequently. This should be kept up three or four days, until the sedative power of the single dose can be determined, and then successive drachms may be added as thought necessary, until the seizures cease or 480 grains or 1 ounce of the salt is taken. The amount of bromides should be sufficient to stop the seizures, or it is better not to give the bromides at all.

Unless one is prepared to give the patient every attention, bromides should never be given; their false or careless administration is disastrous to the patient. The epileptic organism must be kept in the highest possible functioning state. Hot and cold baths, massage, and electricity should be given. If the patient has a good physique, a prolonged hot bath each week should be given on retiring as a general sedative and to promote diaphoresis. Patients taking bromides should take a cold shower-bath and a friction-rub every morning on rising.

The bowels must be watched, the diet must be prescribed; high rectal saline douches should be given once or twice each week. The mouth must be kept scrupulously clean; internal antiseptics should be given constantly to some, and to others at stated intervals. If the face shows the bromism, cloths wrung out of hot water may be applied to the face. This skin treatment should be followed nightly for fifteen to twenty minutes; the last moist-heat application should be a hot saturated solution of boric acid, and finally massage and sulphur or zinc ointment should be applied to the acne (a careful soaping of the face before moist heat is applied is often necessary). Acne in the pustular stage should be opened before moist-heat treatment is used.

If chronic bromism appears, small repeated doses of saline cathartics should be given every other night for a week; milk and vegetable diet instituted; Russian or cabinet baths ordered, followed by diaphoretics and twenty-four to thirty-six hours in bed. If this does not lessen the bromism, one should gradually reduce the bromides, or they may be en-

² Med. Record, Jan. 12, 1901.

tirely withdrawn for two or three days under close watch for paroxysmal syncope.

Once the seizures having been stopped by large doses of bromide, the work in treating the epilepsy has only begun. The high dosage must be maintained for as long a time as possible without intoxication.

While estimating the high dosage for any particular case, the physician should see the patient two or three times each week; every day is better. At the end of a month or six weeks, after the individual regimen is thoroughly established, the patient may go two or three months without a consultation. When cases will not stand the bromide salts in high dosage, because of the resultant toxicity developed, a 10-per-cent. solution of bromine made up with oleum sesami may be given. This formula is known as bromipin. This emulsion of bromine is both highly nutritive and sedative.

Emulsion of bromine:—

℞ Gum. acaciæ gran., 6 ounces.
Olei sesami, 8 ounces.
Syr. simplicis, 2 ounces.
Aquæ, 6 ounces.
Ol. gaultheriæ, 40 minims.

M. et fiat emulsio. Adde:—

Bromi puri, 2 ounces.

Sig.: One-half ounce night and morning, increasing as directed.

In making the bromine preparation the druggist needs to be quick in adding the bromine to prevent loss from fuming. In giving bromine one should consider 2 grains by weight of bromine as equal to 1 grain of bromide salts from a therapeutic stand-point. Not infrequently after the bromide dosage has been adjusted to the seizure level, epileptics will suddenly surprise the physician by hav-

ing two or three seizures just as the second phase of treatment is begun. The explanation is simply this: The patient from being a passive agent, from living a sedentary life, is suddenly placed on active out-of-door life, for the establishment of a real and permanent cure if possible. The patient's bodily activity increases the elimination of waste-products, and the bromide salts are also eliminated more rapidly; consequently the seizures recur. Therefore one should add 15 to 30 grains to the dose in changing the patient from a sedentary to an active out-of-door life, and then readjust again as necessary. These large doses of bromides should be continued for several weeks after the seizures stop; then week by week the bromide should be reduced 15 grains per week until the seizure level is regained, and that dosage allowed to remain to suppress the convulsions. Then, and not until then, can one consider the patient free from the active phase of his treatment. Arrangements may now be made for daily exercise, schooling, manual training, and other occupations of life, preferably in the country and at agricultural pursuits. Physical activity at least several hours daily should be prescribed and carried out faithfully.

The greatest adjuvant to the bromides is known technically as hypochlorization, or salt starvation.

One of the best and easiest ways of carrying out this adjuvant of the bromides is the establishment of a milk diet with occasional removal to a mild salt diet. To aid the carrying out of the salt-starvation treatment, Toulouse's daily dietary has been modified so as to give the following:—

Breakfast: Milk, one pint.

Lunch: Two soft-boiled eggs, farina, milk and sugar, coffee; or muffins made

of eggs, farina, milk and sugar, and coffee.

Dinner: Bouillon unsalted or chicken-broth with a little rice; boiled beef unsalted or roast beef unsalted; potatoes.

Supper: Porridge made with farina, sugar, boiling milk; or milk and rice.

Twenty to 30 grains of table-salt should be given the patient daily to use on food as desired, as this is the essential physiological amount to maintain health.

By this method one can reduce the usual amount of bromides one-half, and still get the same therapeutic result.

Bromipin has been used by Wilhelm Lorenz³ in 34 cases of epilepsy. In 11 the attacks grew worse; in the rest they remained about the same. In 13 cases the number of attacks was less; in 3 the attacks were temporarily less frequent; the rest remained unchanged. These results were much better than those by the opium-bromide treatment.

Harry Corner⁴ thinks it possible to start an industrial colony where the educated high-grade imbecile, the feeble-minded, the epileptic, or otherwise slightly defective might receive suitable occupation and become practically self-supporting. Such cases may be divided into three classes: first, those who, when trained, require supervision in a home; secondly, those who might be made well enough to earn a livelihood in the outside world; and, thirdly, an intermediate class who could be made practically self-supporting in suitable surroundings. For the last class the taking up of such things as poultry-farming, dairy-work, horticulture, etc., is recommended. They should, when trained, have a plot of land where they could do useful and remunerative work under the supervision of a reliable bailiff, thereby preventing further deterioration, and improving the

general health. As to medical treatment, bromide should be reduced to a minimum, but the avoidance of all forms of peripheral irritation should be looked upon as the most important, while general medical and physical hygiene should be studied. Epileptic cases should be studied as early as possible with the view to surgical treatment.

Robert Jones⁵ considers that 33 per cent. of the epileptics in asylums would benefit from treatment in a colony. Potassium bromide is only suitable and advisable in selected cases, owing to the danger induced through the onset of the status epilepticus.

W. A. Turner⁶ says the principles which are used as guides in the management of epileptics in the colony at Chalfont St. Peter are: (a) the removal of the epileptic from town or city environment, including their removal from the sometimes unsatisfactory influence of the domestic circle; (b) regular and congenial employment in garden, fields, orchards, or workshops, under the supervision of capable persons; (c) a well-ordered and regular mode of life, with avoidance of excitement and abstinence from alcoholic liquors; (d) abundance of nourishment of a simple character; (e) the reduction of medicinal remedies to a minimal amount, namely: $\frac{1}{2}$ drachm of bromide of potassium at bed-time.

The effect of the practical application of these principles upon the number and severity of the seizures, and upon general and mental conditions, may be briefly summarized: (a) The frequency of the fits is usually considerably diminished for a period after admission: a

³ Wiener klin. Woch., Nov. 1, 1900.

⁴ Brit. Med. Jour., Sept. 22, 1900.

⁵ *Ibid.*

⁶ *Ibid.*

change which may be ascribed to the effects of improved hygienic surroundings. In a minority there is a temporary increase in frequency, probably due to a diminution of the potassium bromide with which many are saturated on arrival. In most, the average frequency of the seizures is soon obtained. Of those who have been in the colony for the six years of the colony's existence, it may be said that they maintain a surprisingly constant average, both in the frequency and the severity of their seizures. (b) In the majority of cases an amelioration in the severity of the attack has been seen, in a minority no material alteration is observed, while in a few there has been a distinct increase in severity. (c) In a very small minority there has been a steady downward tendency toward dementia, apparently the natural course of the disease in these cases, as it was associated with increased severity and frequency of the fits. In the great majority of cases no such mental deterioration has been observed. The average mental state is very constant. Many of the colonists are capable of work requiring individual alertness and tact, while most are able to do good work under supervision. (d) Under the influence of good food, regular meals, and improved hygienic circumstances, the general physical state undergoes material improvement.

But apart from the influence which the colony system has as a remedial agent upon the duration or course of epilepsy, it has also to be regarded as of immense utilitarian value.

Care is taken in the selection of cases for admission to the colony. It has been found advisable to refuse all those with obvious evidence or organic cerebral disease; those in whom epilepsy developed late in life; those who have been for

prolonged periods in the work-house infirmary; and those who are manifestly insane. Those who by preference are chosen are young adults in whom the disease is of comparatively recent onset.

In summarizing the present status of trephining in epilepsy L. Pierce Clark⁷ says:—

1. Idiopathic epileptics with typical grand-mal seizures should never be trephined.

2. Idiopathics in whom seizures are of the Jacksonian type should be trephined only when infantile cerebral palsies can be excluded, and when the family and personal degeneracy is at a minimum; if operation is determined upon in such cases, a very thorough removal of the epileptogenic area should be made; even then but a fraction of 1 per cent. recover from their epilepsy.

3. Traumatic epileptics may be trephined when the injury is definitely proved and stands in direct causal relation and has existed not more than two years. The prognosis will then largely rest upon the degree of the neurotic predisposition present. The earlier trephining is resorted to after convulsions begin, the better the prognosis.

If these rules are followed, many less so-called traumatic cases will be trephined, but the result will far exceed 4 per cent. of recoveries. All epileptics trephined for whatever cause must be given post-operative bromide treatment for years.

GASTROPTOSIS AND ENTEROPTOSIS.

Diagnosis.—J. Dutton Steele⁸ had an interesting case of gastropotosis, which may be briefly summarized as follows: Two years before admission the patient

⁷ Med. Record, Jan. 12, 1901.

⁸ Univ. Med. Mag., Feb., 1901.

had an attack of abdominal trouble that may possibly have been hepatic colic, or some acute inflammation of the gastro-intestinal tract, which, in view of the subsequent developments, probably involved the peritoneum with the formation of adhesions. Following this attack came symptoms of a chronic gastro-enteritis. In the course of a year jaundice began and steadily increased until she came to the dispensary. There was a moderate loss of weight, without extreme emaciation. There was slight secondary anæmia, with some leucocytosis. No gall-stones were found in the stools.

Inflation of the stomach showed decided gastroptosis. When the colon was inflated it was found to be in its normal position. The stomach was restored to its place by a belt, and the jaundice immediately began to improve. In the course of seven months discoloration of the skin had almost disappeared. Bile is not present in the urine, and has reappeared in the stools, which are otherwise normal.

Malignant disease of the ducts and neighboring structures was excluded because of the absence of cachexia and the improvement under treatment.

It is possible that the attack of abdominal pain referred to was due to the passage of gall-stones, but the fact that the replacement of the stomach to its normal position had such a marked effect upon the jaundice renders it likely that the obstruction of the bile-ducts was not due to an impaction of the stones. The existence of gastroptosis could not have had such a marked influence upon the obstruction of the ducts if this is due to a chronic cholelithiasis.

The most probable diagnosis in the case in question would seem to be that there has been some condition causing a perihepatitis or some form of perito-

neal inflammation, and that adhesions are present binding down the common or hepatic ducts in such a manner that the apparently slight amount of traction from the prolapsed stomach has caused kinking, obstruction, and jaundice.

The grounds for such a belief are:—

1. The absence of other causes, as shown by the course of the disease and the physical and chemical examinations.
2. The fact that a very decided improvement occurred as soon as the stomach was brought back into place.

3. An attack of abdominal pain that, from its violence and duration, may easily have been caused by a local peritonitis with formation of adhesions. This may have been caused by either the passage of gall-stones or an acute gastro-enteritis. (Virchow gives, as a possible cause for the localized chronic peritonitis described by him, just such severe attacks of gastro-enteritis.)

4. The absence of reference in literature to icterus produced by the effect of gastroptosis (without adhesions) upon the ducts.

5. The data collected in the autopsy-room indicates that some fixation of the ducts must be present before the traction of a displaced stomach can produce kinking and obstruction.

In enteroptosis Max Einhorn⁹ remarks that subjective symptoms may be absent, but are generally present and are frequently a faint feeling after rising; fatigue after slight exertion, especially walking, combined in women with back-ache; a feeling of weight in the lower abdomen and a dragging in the epigastrium; flatulence; constipation in most cases and frequent micturition in many. Prolonged cases lead to neurasthenia. Objective symptoms are thinness; flaccid

⁹ Med. Record, Apr. 13, 1901.

abdominal walls too commodious for their contents; protrusion of the abdomen beginning at the navel, with a caved-in epigastrium, found principally in females; and occasional diastases of the recti muscles. Gastroptosis can be demonstrated by gas-inflation, gastrodiphany, and splashing sounds. A strongly pulsating aorta is frequent. A ribbon-like transverse colon can be palpated above the navel. One or both kidneys may be movable; the liver wholly or partly descended. Prolapsus uteri is frequent. The diagnosis is aided by the belt-test, in which the physician, standing behind the patient, encircles the lower part of the abdomen, supporting and lifting it. If this gives relief it points toward enteroptosis.

Treatment.—In gastroptosis H. W. Lincoln¹⁰ says all pressure at the waist should be removed. The clothing should be suspended from the shoulders. The gastric, intestinal, and bowel functions are to be investigated, and a diet arranged accordingly, increasing the latter even to forced feeding. These patients must be nourished to the very highest point. In some of the severer types the Weir Mitchell rest-cure may have to be resorted to from the beginning. In the treatment of the constipation which is so often present sweet-oil enemata yield excellent results. Exercise, electricity (internal and external), massage, and hydrotherapy are useful adjuncts. In extremely nervous individuals some bromide preparation is of service; if there is anæmia, iron is indicated. To overcome anorexia, condurango, nux vomica, and quassia, combined, have a happy effect. Tannate of orexin is useful.

The tendency of abdominal binders and supporters (unless laced too tightly for the comfort of the wearer) is to slip upward, thereby exerting precisely the

pressure wished to obviate. Ordinary rubber plaster, 36 inches long and either 12 or 7 inches wide, according to the size of the individual, may be applied much more snugly than any bandage and still be agreeable to the wearer. This form of brace may remain intact for from five to ten weeks, according to the time of year, diaphoretic propensities of the patient, etc. The dermal irritation is slight, and even this may be obviated by the employment in conjunction with the rubber plaster of a form of zinc plaster recently imported from Germany.

A. I. Bouffleur¹¹ finds that rest in bed, with massage and proper diet, will relieve many cases of gastroptosis of their distressing symptoms. If the dilatation is great, lavage and even "reefing" may be required. If the displacement is marked, gastropexy is indicated, and if accompanied by dilation, both operations should be performed. Gastropexy is of value in relieving the symptoms of a displaced stomach, but, to be permanently beneficial, reduction and fixation of any other displaced organs should be performed, and attendant constitutional and local conditions should be given proper treatment subsequently.

According to Max Einhorn,¹² the treatment of enteroptosis is a well-fitting abdominal supporter; ample nutrition, exceeding that necessary for maintaining the balance of the body; bread, butter, and milk should be taken between meals; out-of-door exercise; electricity intragastrically in functional disturbances of the stomach; iron and arsenic for anæmia, and bromides for nervousness. Massage is contra-indicated in advanced anæmia or considerable prolapse.

¹⁰ Med. News, Sept. 1, 1900.

¹¹ Phila. Med. Jour., Jan. 26, 1901.

¹² Med. Record, Apr. 13, 1901.

Hector Maillart¹³ concludes that, since in cases of ptotic individuals becoming pregnant the intra-abdominal pressure increases rapidly as soon as the uterus has attained a certain volume, and since pregnancy under these circumstances produces a marked improvement in the digestive functions and in the general neurasthenic condition, it follows that by proper treatment this improvement, which seems almost to amount to an absolute cure, may be made lasting. This permanent improvement especially manifests itself in the latter months of pregnancy, and induces a further increase in weight of several kilogrammes.

J. R. Arneill¹⁴ thinks the greater one's experience with enteroptosis, the more conservative and guarded his statements as regards treatment and recovery. All floating kidneys and dislocated stomachs are not to be stitched into place; in fact, only a well-chosen few are benefited by such operation. In most cases of general enteroptosis nephrorrhaphy will be of no benefit.

In gynecological practice a large number of women with displacements and torn perinei have distressing nervous symptoms. The specialist, taking a narrow view of the case, performs anterior fixation, uses pessaries, repairs the perineum, and is disappointed in the results of his treatment. Many of these cases are enteroptotics, and the symptoms are as much dependent on dislocated stomach, kidneys, and intestines as upon retroversion and antelexion. Operation is advisable in cases accompanied by hydronephrosis and Dietl's crisis, in which these are pure mechanical disturbances resulting from a kinking or twisting of the kidney vessels, which could occur only when this organ was dislocated.

Abdominal bandages or belts with properly applied pads may relieve symp-

toms in some cases. They should be applied with the patient in the knee-chest position or lying on her back, with the hips elevated. Reclining in bed often relieves the dragging sensation. In some cases in which the stomach symptoms are prominent, occasional lavage and the use of dilute hydrochloric acid (if there is subacidity) are useful. Exercise and massage of the abdominal muscles are of great value, but can seldom be satisfactorily carried out. Many cases improve remarkably under the use of tincture of *nux vomica*. The method in vogue in Dr. Dock's clinic is to begin with 10 or 15 drops before each meal, increasing 1 drop daily until as high as 70 or 80 drops are taken. This medication should be combined with overfeeding. The general tone of the system is greatly improved, the nervous symptoms especially being relieved; the patient puts on flesh and in every way, with the exception of the dislocations, is greatly benefited.

If the stomach is dilated or if there is retention of food as a result of kinking in the duodenum, gastric lavage should be used as indicated. There must be a great deal of individualizing in the treatment of this condition.

NEURASTHENIA.

Hæmatological Pathology. — C. H. Lodor¹⁵ states that one of the first symptoms noticeable in neurasthenia is the evident anæmia or, if not anæmia, hæmic change. In all cases of neurasthenia coming under personal observation there seems to be some hæmic disturbance, no matter whether the case has as a basis an autotoxæmia, a toxæmia as a sequel

¹³ *Centralb. f. Gynäk.*, Dec. 8, 1900.

¹⁴ *Amer. Jour. Med. Sci.*, Apr., 1901.

¹⁵ *Jour. Amer. Med. Assoc.*, Apr. 20, 1901.

of preceding disease, or is apparently purely acquired or is of distinctly hereditary type. Each type may have some particular prominent symptom, a sexual one or gastric one; but, be the type or special symptom what it may, if the disease persists any length of time there presently appears a condition of blood fairly constant and typical of the disease.

The reds may or may not be reduced in count, at times may be even above count, but the individual erythrocyte has undergone a change so that it resembles the cells in normal blood, which, for want of a better name, may be called old cells. In many cells the cytoplasm in stained specimens seems pushed out to the periphery to such an extent that the cell becomes dumbbell-shaped instead of the normal lenticular or biscuit shape. As a result, the cells pack together closely and show a marked diminution in volume by the hæmatokrit. The oxygen-carrying capacity is lowered, and in consequence the hæmoglobin is deficient in color-test. The blood in neurasthenia then would seem to be poor in oxygen-carrying capacity, and not only this, but, owing to the poor vasomotor control, the peripheral blood at least varies much in its character.

T. H. Romeiser and Joseph Collins¹⁶ find that the hæmatological pathology in neurasthenia is by no means invariable; while some cases have apparently normal blood, the blood usually presents the following conditions: A relative increase of the large and small lymphocytes with a corresponding decrease of neutrophiles, a relative increase of eosinophiles and degenerative leucocytes, a leucopenia often, oligochromæmia, microcytes, and variation in the size of the erythrocytes, which often show nucleoids or are associated with an increase of platelets.

In general, the condition of the blood corresponds with what one might expect to find in such a bodily condition. The great variation often observed in individual cases is not surprising when it is considered that no two cases are exactly alike, either as regards symptomatology or severity of the disease, with primary constitutional differences of the most varied character.

In neurasthenia there is often a striking lack of correspondence between the intensity of the subjective symptomatology and that of the objective, and in general it may be stated that the hæmatological abnormalities both in kind and in degree correspond more with the objective than with the subjective clinical picture.

Treatment.—C. C. Hersman¹⁷ has decided that rest is one of the best medicines for neurasthenia. Electricity and massage are particularly good with those who are put to bed. For those taking the rest-cure the hot bath at bed-time is one of the best possible things. In treating neurasthenia one of the first and most important steps is to gain the confidence of the patient.

Douglas Graham¹⁸ thinks it is generally conceded that electricity can be left off in neurasthenia. As to the massage, it depends, of course, upon how it is done. It is almost sure to produce sound sleep if properly given in the evening to neurasthenics who have been wakeful. But if neurasthenic patients who sleep well without massage are massaged in the evening they are sure to be wakeful after it, and yet they do not feel the loss of sleep next day; they have gained something after all.

¹⁶ *Medicine*, Nov., 1900.

¹⁷ *Jour. Amer. Med. Assoc.*, Jan. 26, 1901.

¹⁸ *Ibid.*

D. R. Brower¹⁹ thinks that, neurasthenia being pathological fatigue, the first indication for treatment must be rest, mental and physical.

A partial rest is all the great majority require, and the amount must be carefully determined in each case. It is usually sufficient to have them retire early, get up late, and take one or more hours of rest at noon. This rest at noon should be in a quiet darkened room, should be absolute, with as perfect a condition of muscular relaxation as possible.

Equally important with rest is the dietetic management. The diet should be largely nitrogenous, and, in order to promote its digestion and assimilation, sugar and sugar-producing articles should be used in the smallest possible amounts. Beef, mutton, and eggs should furnish the basis of the dietary, with milk, when it agrees; and if sugar is cut off these foods are more perfectly elaborated. The predigested foods are of great benefit, special preference being given to malted milk and somatose, a teaspoonful of the latter being ordered with a cupful of the malted milk, and this in the absolute-rest cases may be given every two hours; in the partial-rest cases between each meal and at bedtime.

Coffee and tea are beneficial in many cases, excepting those who have the excessive use of these articles as a part of their etiology. Excessive use of either of them aids in prolonging and promoting neurasthenia, but in moderation they are both conservative to the general nutrition.

Electricity is the third indication. In the absolute-rest cases general faradism is necessary, and in the beginning of the treatment it should be very gently applied and to the extremities only; later, to the whole body, using currents that

can just be felt. The bed cases should also receive galvanism, first to the head, using a descending current with large electrodes of from 1 to 3 milliampères; then to the cervical sympathetic, using from 3 to 5 milliampères, and then to the spine and abdominal sympathetic, with a large negative electrode at the epigastrium and a smaller one over the spine and a current of from 5 to 10 milliampères. These séances should be given daily.

The partial-rest cases who come to the office should have static electricity. It may be used by insulation with the primary current, and by sparks from the spine and abdomen with the secondary current for fifteen or twenty minutes daily.

Hydrotherapy is the fourth indication. Sponge-baths are a necessary part of the Weir Mitchell treatment, but in addition they should have the wet pack daily, beginning with a temperature of about 70° F., and gradually lowering to 50° F., prolonged for about one hour.

For the partial-rest cases the dripping sheet is used, the water being about 70° F., and the friction with the sheet made vigorous, the whole rapidly done. The shower-bath, beginning with moderately warm water and gradually cooling it, is of much service in many cases. The hot-air bath, like the wet pack, will promote elimination and often overcome insomnia. Cabinets for this purpose are now readily accessible at a reasonable price.

Massage is the next indication, and is required in all the absolute-rest cases. It should be given by the nurse. It should be given very gently in the beginning, the movements being limited to the gentle and superficial ones, and little by little the force, vigor, and extent of

¹⁹ Jour. Amer. Med. Assoc., Jan. 26, 1901.

the treatments should be increased. The partial-rest cases sometimes need massage and sometimes do not. If the effect of the massage is sedative, it will do good; if, on the contrary, it is exciting or irritating, it may do harm. As the case progresses toward recovery, physical exercise becomes necessary. The Swedish movements may be added to the massage; light calisthenics may be provided, and such out-door exercises as golfing. This is one of the very best out-door exercises of to-day for the convalescent cases, and, indeed, for many of the mild cases from the beginning. The reasonable use of the bicycle is of much use to many. Horseback-riding is a very valuable out-door exercise. Change of scene is often of advantage, but much traveling is injurious.

The climate selected should be one with a moderate mountain elevation, 1500 to 2000 feet, and one not too dry. Ideal places are to be found in the Allegheny Mountains, especially in the mountains of North Carolina—the country round about Asheville, and even better the country north of Asheville, with Linville as its centre.

The sanitarium, for a short time, is a good place for some patients.

In the drug treatment of neurasthenia the first important class is those which promote elimination. The aloetic laxatives most frequently used are the Lady Webster dinner-pill, or the pill of aloin, strychnine, ipecacuanha, and belladonna. Occasionally a calomel purge is beneficial. Many of these cases require colonic flushings with the normal saline solution administered in the knee-breast position. Such flushings may be administered in the majority of the constipation cases once or twice a week. Renal deficiency very often demands diuretics, of which the effervescent potassium cit-

rate is the most efficient. All neurasthenics are greatly benefited by the imbibition of a large amount of water.

For the nervousness the bromides are invaluable, sodium bromide being preferred, especially when combined with the fluid extract of *adonis vernalis*, in from 1- to 5-minim doses. Hypnotics are rarely to be administered. The bromides during the day, the hot-air bath or the hot pack at night, with some easily digestible food at night will almost invariably secure all the sleep that is necessary. Blaud's mass, combined with small doses of the extract of *nux vomica* and arsenous acid, makes the best hæmatinic combination. Cases that are not improved often require alteratives in addition, and the chloride of gold and sodium, combined with the pulverized resin *guaiaci*, a combination that prevents the decomposition of the gold salt, given before meals, a half or three-quarters of an hour, is the best alterative combination in personal experience. Occasionally small doses of the corrosive chloride of mercury answers next in preference as an alterative. Phosphorus, as the zinc phosphide, or the syrup of the hypophosphites (U. S. P.), is of service in some cases, and the animal extracts containing phosphorus in a readily assimilable form may be used with advantage. The mineral acids in some of the dyspeptic cases, for temporary use, are of service. Quinine, unless there be a malarial element present, and strychnine increase the nervousness and do not benefit, except in exceptional cases, general nutrition.

No matter what special line of treatment may be adopted, it is very important to keep the patient busy in his efforts at cure, and a daily schedule of therapeutic work should be furnished to him.

F. Savary Pearce²⁰ says it is in dealing with convalescents from neurasthenia, with incipient cases, or with those in danger of a recurrence, that the climatology of neurasthenia is especially important.

It is almost axiomatic that an altitude of over 2000 feet is unsuitable for the neurasthenically-disposed or convalescent patient. Any very "stimulating" climate should be avoided. Other conditions to be avoided are as follow: Districts menaced by high winds and frequent fogs; cloudy, saturated atmospheres with but slight movements of air-currents; low country (sea-level) with continuous, non-varying, although moderate, heat, as where the effect of the gulf-stream is strongly felt. Thus, the Bermuda Islands and Florida are enervating localities.

Ideal conditions for the neurasthenic include sea-air in a well-wooded country, far enough from the coast to avoid its fogs. A sea-voyage is, as a rule, an excellent preliminary to other climatic measures. Provided the voyage is not stormy, it acts both psychically and physically in soothing the nervous system.

In order to obtain the full benefit of correct climatic conditions the patient must have good food. Without this important adjunct the desirable climatic change may be entirely defeated in its effect on the patient.

PLAGUE.

Symptoms. — J. M. Flint²¹ says that the frequency with which the buboes occur in the lower sets of lymph-glands is explained by the fact that both in India and China natives of the lower classes go barefooted. But all of the men in the Shropshire segment in Hong-kong who were attacked with the plague while on inspection duty had femoral or

inguinal buboes, even though they were well booted. Their trousers, however, were open at the bottom, admitting dust-particles laded with plague bacilli.

In most cases the buboes are exquisitely tender, and generally require local applications to relieve the pain. For this purpose the ice-bag has been used with good effect in India. Between the portal of entry and the enlarged glands there is often a well-marked lymphangitis and at different points multiple lymphatic abscesses may occur. Most of the buboes do not suppurate. Mixed infections have a very important influence on the question of suppuration.

A suppurating plague bubo forms a most indolent ulcer, and the granulations at the base sprout with such reluctance that it may take months for them to heal. Fortunately in these old chronic ulcerations the pus is usually sterile. There are no constant prodromata in plague, and the onset, as a rule, is sudden, marked by headache, fever, back-ache, and a general feeling of malaise. Vomiting of a blood-stained fluid has been observed not infrequently at the onset. The plague consists of a mixture of anxiety, cyanosis, and dyspnoea, and in mentioning it Lowson says: "Generally speaking, there is something indescribable in the face of the plague-stricken which seems to help your diagnosis: an expression as if the sufferer himself knew all about it, and his inner consciousness had left its mark upon his features." The plague tongue has a heavier coating than in typhoid fever, and is considerably clearer about the margins. Soon the coating turns black, and sordes often cover the teeth and lips. After the onset the fever usually rises

²⁰ Med. News, Jan. 26, 1901.

²¹ Bull. Johns Hopkins Hosp., June, 1900.

rapidly and reaches its maximum in from twelve to twenty-four hours. The common temperature ranges from 103° to 105° F., but cases with a fever as high as 108° are not infrequently observed.

The patient soon after the onset shows evidence of great prostration. The pulse, at first, is full and bounding, and later becomes feeble and collapsed. Dicrotism is very common, and the heart, in the majority of cases, needs repeated stimulation to overcome the cyanosis.

On the second or third day the cerebral symptoms usually appear: these consist of a general apathetic condition on the part of the patient, coma or delirium of varying degrees. During this period it is often difficult to get the patients to take nourishment, and the attendants must resort to strategy or rectal feeding. During this period of the disease symptoms of meningeal involvement and cerebral hæmorrhages are sometimes observed.

The respiratory symptoms in most cases consist of a marked hypostasis, owing to the marked cardiac weakness; but when the pneumonic type of plague is present, the condition is more often of a lobular type. During the course of the disease, as well as at the onset, vomiting occurs, and the vomitus in such cases is stained with both bile and blood. The spleen is palpable, and remains so during the course of the disease. There is always some albumin in the urine, but it is small in amount; likewise casts, epithelial debris, and occasionally plague bacilli are also found. In general, the disease runs its course in five or six days, but the fever may remain elevated for weeks, especially in cases where there is a secondary pyæmic infection. Death in most cases occurs from heart-failure.

Diagnosis.—J. Milford Atkinson²² remarks that the diseases for which plague

may be mistaken are typhoid fever, typhus fever, and splenic fever, and in the pneumonic variety it may at its onset be mistaken for influenza. It is distinguished from typhoid fever by its sudden onset, by the absence of the rash and the abdominal symptoms, and in a few days by the appearance of the bubo. Typhus fever has a longer fever stage, viz.: fourteen days. The difficulties chiefly occur in the severe cases without buboes and in the mild cases with slightly enlarged glands which simulate adenitis, the so-called *pestis minor*, or *pestis ambulans*; in all cases, however, the diagnosis can be established by finding the characteristic bacillus.

James Cantlie²³ says when plague exists in a locality the diagnosis of a typical case is easy. The sudden incidence of the disease, the headache, vomiting, hot dry skin, rise in temperature, giddiness, congested conjunctivæ, thickness of speech, intoxication appearance, and the extreme prostration all point to infection by plague. Assistance in coming to a conclusion is afforded later by the appearance of the tongue, the glandular enlargements, hæmorrhages, mental aberration, sleeplessness, and the course of the temperature. The pneumonic type of the disease is still more difficult to diagnose, if plague is not present to one's mind as a cause. Assistance in suspecting plague as a cause is afforded by a study of the rapid onset of the lung lesion without any previous bronchial symptoms, by the sudden attack of prostration, fever, and general symptoms, and inspection of the sputum, when it will be found watery and profuse, and tinged by or mixed with blood. It is only, however, by microscopical examina-

²² *Lancet*, Jan. 26, 1901.

²³ *Practitioner*, Oct., 1900.

tion of the sputum that the presence of the disease can be actually diagnosed.

In tropical countries the medical practitioner has to eliminate malarial fever, filarial fever, and relapsing fever from the list of possibilities in coming to a conclusion.

The diagnosis of plague from the signs and symptoms can be safely made in the majority of cases when once the cause is suspected; but in many cases—in fact, in every case—the diagnosis can only be positively made when the bacillus pestis is proved to exist in the blood, in the excreta, or in the fluid drawn off from a gland or from the periglandular swelling.

R. Tanner Hewlett²⁴ thinks that plague may be diagnosed with certainty by bacteriological examination, which may be conducted as follows:—

1. One is to make smear preparations with the blood and with fluid from the buboes. Some of the preparations being stained with methylene-blue or with weak aniline gentian-violet (1 to 3),—in the latter instance, after staining, clearing by rinsing for two or three seconds in weak alcohol (1 to 1),—others being stained by Gram's method. The cover-glasses, after staining for three minutes, are washed, dried, and mounted in Canada balsam and examined with a $\frac{1}{12}$ -inch oil-immersion lens. The presence of numbers of short diplobacilli with polar staining, which are decolorized by Gram's method, is highly significant. The bacilli may be scanty or numerous in the buboes, and may be accompanied by cocci and streptococci (these will stain by Gram's method). They are not likely to be numerous in the blood except in severe, moribund, or septicæmic cases. The non-finding of the bacilli in a microscopical preparation counts for nothing. A microscopical examination cannot be absolutely relied upon to estab-

lish the diagnosis in a primary case; cultivation and inoculation must also be carried out if possible, but in the secondary cases during an epidemic it suffices.

If there be any expectoration, it may be similarly examined; in pneumonic cases the diplobacilli will be very numerous (the *diplococcus pneumoniae* is smaller than the plague bacillus, and stains by Gram).

2. If the characteristic bacilli be found, a fresh hanging-drop preparation should be made and examined for motility (the plague bacillus is non-motile).

3. Cultivations should be made on surface agar and gelatin with a platinum loopful of the material, the same loop being streaked over two or three tubes. Two or three broth cultures may also be made. In twenty-four to forty-eight hours the cultures will have developed, and the naked-eye and microscopical characters may be noted.

4. Two or three small guinea-pigs (200 grammes or so) should be inoculated subcutaneously in the abdomen with a little of the fluid (0.25 to 1 cubic centimetre) from a bubo or with an emulsion of the material. Death will ensue within seven days, probably in two or three, with characteristic post-mortem and microscopical appearances, which can be confirmed by cultivation.

Fluid from a bubo may be obtained by means of an antitoxin syringe after carefully cleansing the skin.

According to D. C. Rees,²⁵ the micro-organism of plague resembles somewhat closely the bacillus of chicken cholera. It is a small bacillus, measuring from 1 to 2 microns in length, and from 0.3 to 0.5 micron in width. Larger forms are

²⁴ Practitioner, Oct., 1900.

²⁵ Brit. Med. Jour., Oct. 27, 1900.

often met with which may measure as much as 4 or 5 microns. It possesses rounded ends, giving it an oval appearance. It is usually regarded as being non-motile. Kitasato, however, states that if it be examined in media kept at a temperature of 37° C., it can then be observed to be actively motile. In cover-glass preparations made from blood and sputum, it is frequently seen to be arranged in pairs. In fresh broth cultures it tends to form streptococcus-like chains made up of from five to six short bacilli. These chains are sometimes observed in the sputum. Involution forms are frequently met with; these occur generally when the bacilli are existing under unfavorable conditions; for example, when they are present as a mixed infection in buboes, or in old broth or agar-agar cultures. They may be thickened, pear-shaped, or spindle-shaped. The plague bacillus does not form spores, and it has no true capsule, although in some stained specimens an appearance suggesting encapsulation is present. It is a facultative anaërobe.

It stains readily with the ordinary aniline dyes, but is decolorized by Gram's method. In cover-glass preparations made from buboes, blood, or organs, the bacillus stains more intensely at the ends, giving rise to a bipolar appearance. Good routine stains are weak carbol-fuchsin (1 in 4), Loeffler's blue, and weak gentian-violet. The bipolar appearance can be generally best brought out by overstaining with strong carbol-fuchsin for four or five minutes, and then carefully decolorizing in absolute alcohol. The plague bacillus shows a great affinity for the thionin group of stains, such as carbol-thionin and toluidin-blue, and these are excellent for staining blood and sections of organs and glands.

In the bacteriological examination of

a suspected case of plague the method of investigation differs according to whether it be one of the bubonic, pneumonic, or septicæmia type. In the bubonic form the bacillus must be looked for in the buboes, in the pneumonic form in the sputum, and in the septicæmic form in the blood.

When dealing with sporadic cases or at the onset of an epidemic the bacteriological examination requires to be undertaken with care, and systematically. During an epidemic, however, a provisional diagnosis can often be made by simple examination of cover-glass preparations made from the gland, sputum, or blood, as the case may be. In bubonic cases of ordinary severity, the inflammation is very acute, usually of an hæmorrhagic character, with marked exudation and infiltration into and around the affected gland. In these cases a sterilized antitoxin syringe should be plunged into the gland, when a sufficient quantity of fluid can be readily obtained. In mild cases where the inflammation is more chronic and softening of the affected gland often absent, it is preferable to make a small incision (with aseptic precautions) and remove a small piece of the gland, which is placed in a sterilized tube for subsequent examination.

In pneumonic cases the sputum should be collected in the ordinary way, and not mixed with any antiseptic material.

In septicæmic cases it is best, in order to exclude the possibility of skin contamination, to remove a sufficient quantity of blood directly from a vein by means of an aseptic hypodermic syringe.

The infective material obtained from one of the above-mentioned sources should be dealt with in the following way: Two cover-glass preparations should be made, and one stained with an ordinary aniline dye, such as weak car-

bol-fuchsin, and the other by Gram's method. The presence of short bacilli, exhibiting bipolar staining and tending to arrange themselves in pairs, or short chains, and which are decolorized by Gram's method, is highly suggestive. Negative evidence, however, is of less value, and should never be relied upon in suspicious cases. In buboes which have suppurated the bacilli may be absent or scanty. In cases of *pestis minor* the affected glands may contain very few bacilli. The plague bacillus frequently occurs as a mixed infection, generally being associated with staphylococci and streptococci. These, however, stain by Gram's method. In sputum it may be mistaken for the *diplococcus pneumoniae*, but this also stains by Gram's method, and appropriate staining reveals the presence of a distinct capsule.

Prophylaxis. — Sheridan Delepine²⁶ notes the dangers of the slightest carelessness in laboratory plague.

Animals under observation should be kept in a separate room, in glass jars covered with fine gauze weighted lids. For additional security the jars should be placed in a larger case, constructed very much like a meat-safe, but entirely made of metal and glass (iron frame, sides entirely closed by fine wire gauze, glass doors, with well-fitting frame). This outer case should entirely prevent rats, mice, or even insects from having access to the animals or their food.

As a further precaution this case should be placed above a large metal tray easily disinfected, and supported above the floor by a metallic stand.

The skin of animals which have to be dissected should be well soaked with an acid solution of perchloride of mercury (1 in 500) before the animal is opened, and the dissection should be made over a tray containing some of the same solu-

tion. The body and organs which are not preserved in suitable preservative fluids should at once be destroyed by fire. Laboratory attendants should not be allowed to touch any infected animal or products before these have been thoroughly disinfected. The comparatively great number of deaths attributable to plague infection in the laboratory or the post-mortem room, which have occurred during the last three or four years, clearly indicates that an exceptional amount of care is needed in work of this kind.

W. C. C. Pakes²⁷ thinks that a laboratory for the investigation of plague should consist of three rooms: an anteroom for the preparation of media, cleaning of used vessels (after sterilization), and for the many other duties which devolve upon a laboratory assistant; the laboratory proper; and a room wherein to keep all infected animals. It is preferable to have a special building for the purpose, but if that is impossible, and the laboratory forms, or is to form, part of a larger building, it should be isolated, as regards communication, from the rest of the building, and so arranged that the only ingress to the laboratory is through the anteroom, and to the animal room through the laboratory. The walls and ceilings should be made of non-porous material, and should have a glazed surface without break; the floor should be of cement or of grooved tiles well set in cement. The windows must be large, and so arranged that the lighting is uniform, the window-sashes of iron, and not projecting into the room. All corners must be rounded off. The ventilation of each room should be sepa-

²⁶ Brit. Med. Jour., Oct. 27, 1900.

²⁷ *Ibid.*

rate, the outgoing air being made to pass a gas-flame. The source of heat should be, whenever possible, a gas-stove, the source of artificial light gas or electricity.

Every endeavor must be made to prevent the formation and collection of dust, and to this end it is advisable to have the floor moistened with a solution of corrosive sublimate containing a little glycerin.

The amount of furniture consists of a porcelain sink, a slate or glass bench for microscopical and cultural work, a similar bench for performing necropsies on animals, a muffle for burning the dead bodies, an autoclave, small shelves for keeping the disinfectant solution, a small metal cupboard for keeping syringes, instruments, and a small stock of media, and an incubator.

The infected-animal room might with advantage have a slate or glass shelf about two feet wide and three feet from the ground running round the room, upon which to place the cages containing the animals.

In the anteroom would be the ordinary sterilizers, sink, etc., and a similar shelf to that in the infected room along one side upon which to keep the stock animals. No shelf, bench, cupboard, or other article of furniture in any of the rooms should have sharp corners or edges; everything should be carefully rounded off in order to eliminate the chance of scratching the skin. All the instruments should be in the best possible order; the syringes (with asbestos plungers) should work easily and the needles should be sharp; the knives and scissors should all be very sharp and the forceps strong and certain.

In the conduct of the laboratory the bacteriologist himself should alone handle the infected material, cultures, and animals, even to the extent of feed-

ing the animals. Both the principal and assistant should wear mackintosh overalls, which must be frequently washed with strong disinfectant solution.

The media should be all prepared in the anteroom; the assistant should go into the laboratory as seldom as possible, and never in the absence of the principal; for this reason there should be only one key, and that in the possession of the bacteriologist.

When an animal is to be inoculated it should be prepared in the anteroom, only the actual inoculation being performed in the laboratory. During the inoculation both principal and assistant should wear India-rubber gloves, which can be easily disinfected.

After the inoculation the syringe must be at once placed in boiling water or a strong disinfectant, and the animal—rat or mouse—placed in a cage. Special cages are necessary, and those used by Professor Paltauf are convenient.

Upon the death of the animal it is removed with forceps and fastened on a suitable block of wood, carrying small wooden plugs at the side, by means of string or wire. The cage should be at once placed in the autoclave and sterilized.

In making the necropsy gloves should be worn. The instruments, having been boiled, should be ready for use, and the small sterilizer on the bench should be kept boiling while the necropsy is being made, so that any instrument which is finished with, either permanently or temporarily, may be at once placed in the boiling water.

Upon the completion of the necropsy the principal should sterilize all the instruments, calcine the animal in the muffle (the wood block should be placed in the muffle, no attempt being made to free the animal from it), and thoroughly

disinfect the bench with disinfectant solution.

All discarded cultures must be at once placed in the muffle and incinerated, or sterilized in the autoclave before leaving the laboratory.

The same scrupulous care must be taken in making a necropsy upon the human subject.

A. Calmette²⁸ states that the measures to be taken for the purpose of preventing the transport of plague by ships are of two kinds. In the first place, close supervision must be established in all ports exposed to infection of passengers and goods coming from suspected localities, and the employees who disembark them. In the second place, not a single rodent from a suspected ship must be allowed to reach terra firma; for this purpose the discharge of the ship's cargo must be by means of barges or else in quarantine docks cut off from land by a sheet of water.

If the plague breaks out on a ship, the only way to arrest it is to inoculate immediately with antiplague serum, as a preventive measure, all the passengers and crew. This injection should be repeated every ten days up to the end of the voyage.

The navigation companies and ship-owners should take the necessary steps to provide their vessels on sailing with a sufficient stock of antiplague serum. Special instructions relative to the use of the serum—*e.g.*, for the preventive vaccination of every one on board, if a suspicious case occurs—should be given to every ship's doctor and every captain.

Lazarettos, medical establishments, and all civil and marine hospitals in naval and commercial ports ought to possess a store of antiplague serum, and to renew it at stated periods.

In regard to towns, on the first appear-

ance of a case of plague, a confidential note, detailing the principal symptoms of the bubonic and pneumonic forms of the complaint, with the precautions to be taken to avoid contagion, and to insure rapid diagnosis, and giving every necessary information respecting preventive vaccination should be distributed to medical men, and to them only, in order not to alarm the population. Whenever direct contagion is to be feared the use of antiplague serum for vaccination is to be recommended; but if it be only desired to confer immunity on a large number of persons grouped around a given centre, but not in direct contact therewith, active vaccination with culture of plague bacilli killed by heat is to be advised, following the Haffkine method, modified as indicated.

Every town exposed to contamination ought to anticipate a possible outbreak of plague cases among its population, and to take precautions beforehand, so as to secure the immediate isolation of the first patients. For this purpose a special hospital or pavilion must be installed, as isolated as possible, and all needful steps must be taken to enable the most speedy diagnosis to be made by expert bacteriologists.

J. Milford Atkinson²⁹ thinks if a person arrives from an infected port suffering from plague, or from an illness suspected to be plague, he should be isolated and his dejecta should be rendered harmless. The cabin occupied by the patient, and the ship generally, must be disinfected. All fomites belonging to the patient should be destroyed. All those who have been in contact with the infected person must be kept under medical supervision for ten days. All water

²⁸ Indian Lancet, Jan. 28, 1901.

²⁹ Lancet, Jan. 26, 1901.

from an infected port should be regarded as dangerous. Should the disease occur on shore, those suffering from it should be isolated, the dejecta should be burned, and the house and the articles belonging to the patient should be thoroughly disinfected. All persons who have been in contact with the patient must be segregated under medical supervision for ten days. The hygienic condition of privies, drains, etc., must be attended to, and a house-to-house visitation of the infected neighborhood should be made. Meat from infected ports should be inspected. Rats should be destroyed. Patients who have died from the disease should be cremated.

During the prevalence of the disease those in attendance on the sick should maintain perfect cleanliness of the person; the hands should be frequently washed, and watch should be kept for the slightest abrasions or wounds of the skin. All attendants on the sick should not eat in a sick-room and should be most careful to disinfect their hands and face. All food should be well cooked and the dishes should be cleansed with boiled water. Houses known to contain, or suspected of containing, cases of plague should not be visited unless at the call of duty.

Treatment.—According to James Cantlie,³⁰ although no specific cure for plague by medicines is known, yet in no disease is the efficacy of prompt medical treatment and of careful nursing better shown.

Calomel in 5- to 10-grain doses should be given when the person is seen early in the disease, followed in some six or seven hours by a saline. When, however, the pulse is weak and prostration pronounced, or when the patient is seen after some days of illness, purging the patient is contra-indicated.

From the onset of the disease, but more especially when prostration is marked, stimulation by food, by alcohol, and by cardiac tonics is necessary. The food should be given in small quantities and frequently repeated. Beef-tea, the Maggi consommé, plasmon, Brand's essence, etc., are better tolerated than milk. Rectal feeding may have to be resorted to when vomiting and hiccough persist.

Fever-drinks, coffee, tea (hot or cold), etc., are necessary to allay the intense thirst. Brandy or whisky must be administered systematically, and, when collapse threatens, ether hypodermically must be resorted to freely and frequently.

Medicines are necessary to stimulate the heart and circulation, to produce sleep, or to allay delirium.

Of the cardiac stimulants, strychnine, given in 5- or 10-minim doses by the mouth, or $\frac{1}{4}$ grain administered hypodermically, is the best drug. Digitalis is disappointing. Musk in 5-grain doses, 2 grains of camphor, or aconite, caffeine, etc., in the usual doses are alternative drugs employed with occasional beneficial results.

At times nothing but morphine, administered hypodermically in doses of $\frac{1}{8}$ to $\frac{1}{4}$ grain, is of any avail in sleeplessness. Hyoscine, in doses of $\frac{1}{100}$ grain, more especially when delirium is pronounced, is attended frequently by satisfactory results. Bromides are occasionally useful, but their continued administration is not advisable.

Delirium may be calmed by cold to the head and by sponging the body with warm water; hyoscine or morphine may be also given with that intent. Diarrhoea seldom requires checking; should

³⁰ Practitioner, Oct., 1900.

it, however, continue unrestrainedly for twelve hours, a starch-and-opium enema, a 20-grain dose of salol, or a Dover powder will suffice to arrest the flux. In pyrexia, sponging the body, cold to the spine, brandy internally, hot drinks, etc., must be relied upon, as antipyretics of the nature of antipyrin and phenacetin are well-nigh forbidden. Vomiting, when troublesome, requires mustard plaster to epigastrium, ice to suck, and perhaps a mixture containing a few drops of hydrocyanic acid and liq. morphine.

Buboes are to be treated on general principles; when ripe they are to be opened, and the suppurating cavity left drained and kept clean and sweet. No good comes of early incision or excision of the gland or chain of glands. When the pain of the adenitis is great, it may be relieved by poultices, belladonna, etc.; punctures of the gland-capsule by an hypodermic or surgical needle or by subcutaneous incision in the gland-capsule recommend themselves as means of relieving the pain of tension.

Retention of urine may occur and necessitate the use of the catheter.

The nurse or attendant in the ward must be told of the danger of sudden death from allowing the patient to get out of bed, or even to sit up in bed.

The Yersin *curative* serum has been tried in China and India, but its reputation is not high. The Yersin-Calmette serum, as prepared at the Pasteur Institute, Paris, and administered during the plague outbreak at Oporto, in 1899, was favorably reported by Calmette, who personally superintended the inoculation. He is of opinion that with the serum he reduced the mortality of plague in Oporto to *nil* by this treatment.

Patients suffering from plague should be taken to a "plague" hospital. This should by preference be a temporary

structure, so that it can be burned after the outbreak is over.

J. L. Bunch²¹ remarks that the treatment of plague by means of antitoxin serum has proved most successful in the hands of Calmette and some other observers. Thus, at Oporto during September, October, and November of last year 142 patients were treated with serum and only 22 died. The mortality among those treated with antiplague serum was therefore only 15 per cent. as compared with 63 per cent. among those not so treated. Calmette insists on the necessity of injecting the serum directly into the circulation; 20 cubic centimetres of antiplague serum are injected into a superficial vein of the patient's hand, forearm, or leg as soon as a case of plague is suspected, without waiting for the results of bacteriological examination. If the fever does not subside completely in twenty-four hours, and if the diagnosis is confirmed, another injection of 20 cubic centimetres of serum must be given into a vein. These injections are absolutely harmless, and, if care is taken to warm the serum to body-temperature before injection, the patient experiences no discomfort from the injection. Serum-injection is equally efficacious for the prophylaxis of plague in localities already infected, but the protection afforded is not a very lasting one, and the injection must be renewed at the end of a week. Prophylactic injections need not, however, be given intravenously; a simple injection of 10 cubic centimetres under the skin of the abdomen is quite efficacious. The serum presents the immense advantage of conferring immunity in a few hours.

A. Lustig and G. Galeotti²² state that

²¹ *Lancet*, Feb. 23, 1901.

²² *Brit. Med. Jour.*, Jan. 26, 1901.

the clinical observations concerning the effects of personal serum have been collected with the assistance of Dr. Choksey, in charge of Arthur Road Hospital. The serum was injected into every individual infected with plague, without distinction of age or period of illness, making no account of the complications present, and it was even injected into some dying persons.

Of the 175 patients treated with the serum, 18 were in a most dangerous state when they were put under treatment. These patients had received only one or two injections before they died.

Thus, these 18 cases should not be included in estimating the definite valuation of the serum.

The mortality, therefore, among the patients treated with the serum may be placed at about 53 per cent., while the general mortality for plague at the same period—namely, from March 10th till the end of June—was, according to the official statistics, about 94 per cent.

Results with other serums were obtained during the same period of time, in the same hospitals, on analogous patients:—

1. In 1897 the results obtained by the curative serum prepared by Haffkine's

method were so little satisfactory that Haffkine himself thought it advisable to discontinue such treatment.

2. In 1897 the serum prepared by Yersin was tried in three very early cases which only Dr. Yersin considers amenable to his serum. The mildest of them recovered after a very long and protracted convalescence; the other two died within twenty-four hours of the injection.

3. In 1897 the Russian serum "prepared according to Dr. Yersin's method, which was tried by Professor Lewin, of the Royal Military Academy of St. Petersburg, did not give good results even in a single case, as all the cases injected died."

4. In 1898 another supply of Russian serum was tried by Dr. Janeinski, Dr. Kaskadamoff, and Dr. Wigoura. This also showed no efficiency in lowering the mortality.

5. In 1898-99 the serum of Professor Roux was brought by the Indian Plague Commission.

The result was unsatisfactory and disappointing, especially as in laboratory experiments Roux's serum had shown a decided antagonizing action to the toxins of plague.

Cyclopædia of Current Literature.

ADENOIDS, PHARYNGEAL.

Treatment.—Local applications of such alteratives and astringents as tincture of iodine and nitrate of silver may be a sufficient treatment in a small number of special cases, but the real management of pharyngeal adenoids consists in their removal by operation.

The manner of operating personally preferred is as follows: The child is

seated upon an assistant's right knee with its head resting on his right shoulder. Chloroform is then administered until the patient is relaxed, when the mouth-gag is inserted. Then, as soon as it is sure that the patient is not too profoundly anæsthetized to swallow, the operation is begun, the Gottstein curette being used, which is passed as firmly and as rapidly as possible several

times over the region from which the growths project. Blood and detritus are then cleared away from the pharynx, and, when the bleeding has subsided, the naso-pharynx is again examined with the finger. If there are still growths in the naso-pharynx that have escaped the curette, they are located with the finger and removed with the cutting forceps personally devised as a modification of the Loewenberg instrument.

It is rarely necessary for the patient to remain in bed more than a day, even when an anæsthetic has been administered. The only after-treatment required, as a rule, is cleanliness of the wound, codliver-oil, iodide of iron, fresh air, and good food for the general condition. Any residual catarrh of the nose or throat should be eradicated before the patient is discharged. The aural complications must be treated according to their indications. J. H. Woodward (Med. News, Feb. 23, 1901).

BACILLUS COLI COMMUNIS DISTINGUISHED FROM BACILLUS TYPHOSUS.

Experiments with the bacillus typhosus and the bacillus coli communis lead to the following conclusions: 1. That bacillus coli communis possesses to a marked degree the power of reducing neutral red, producing a superb canary-yellow fluorescent color of the medium. 2. That the so-called bacillus enteritidis of Gaertner also produces this reaction, and is probably only a variety of bacillus coli communis. 3. That the bacillus typhosus never possesses this power of reduction. 4. That the common pathogenic micro-organisms do not give this reaction. 5. That by means of neutral red it is possible within from twelve to twenty-four hours to diagnose with absolute accuracy the presence of bacillus

CALCULI, SCIAGRAPHIC DETECTION.

coli communis. Finally, as far as personal experience goes, it is possible to diagnose by means of neutral red the true coli group from the typhoid group of micro-organisms. William Hunter (Lancet, Mar. 2, 1901).

BACTERIA, INFLUENCE OF OZONE ON.

In the dry state, and under the conditions in which it occurs in Nature, ozone is not capable of any injurious action on bacteria so far as can be judged from experiments; and any purifying action which ozone may have in the economy of Nature is due to the direct chemical oxidation of putrescible organic matter, and that it does not in any way hinder the action of bacteria, which latter are, indeed, in their own way working toward the same end as the ozone itself in resolving dead organic matter to simpler non-putrescible substances. A. G. R. Foulerton (Lancet, Mar. 2, 1901).

CALCULI, SCIAGRAPHIC DETECTION OF.

From the examination of 136 cases suspected of having renal or ureteral calculi, and the detection of 19 cases of ureteral and 17 cases of renal calculus, these conclusions are drawn:—

1. That both the negative and positive diagnosis by the Roentgen method are accurate and valuable.

2. That ureteral calculus is much more common than has been supposed, or about 50 per cent. of all cases of calculus.

3. That it is impossible to arrive at as accurate a diagnosis of calculus by other methods.

4. That this method is comprehensive, and aids operative intervention by localizing all calculi and excluding calculi from the other kidney.

5. That non-operative treatment, with a negative diagnosis by this method, is irrational and dangerous in cases that are at all suspicious.

6. That this method is precise, because its results are mechanically produced, but that accuracy in its employment and care in reading the results are necessary to the avoidance of error.

7. That the data obtained by this method make non-operative, conservative treatment rational in cases of small calculi low down in the ureter that can be expected to pass.

8. That the negative diagnosis does not preclude exploratory nephrotomy, but does make unnecessary the actual incision into the kidney in search for calculi.

9. The dilatation of the ureter with bougies, as has been practiced in the female, may be employed in the male by utilizing a suprapubic cystotomy wound to guide the instruments from the urethra into the ureters. C. L. Leonard (*Annals of Surgery*, Apr., 1901).

CAROID IN MALDIGESTION OF INFANTS.

In its action upon milk the enzymotic power of caroid is exhibited in a very striking manner. Ordinarily, the casein of cows' milk produces large and firm masses in the stomach: masses that the normal digestive ferments penetrate with such difficulty that they frequently cause indigestion in the infant, and appear in the stools in coagula of greater or less size. Acted upon by this ferment, however, cows' milk closely resembles human milk in appearance, its casein being so digested that it either is not at all precipitated by acids, or is precipitated, like that of human milk, in fine, feathery flakes. When the process is continued, these flakes are subsequently disinte-

grated into the forms of the soluble syntonin, and finally transformed into a true peptone, capable of diffusing itself through animal membrane.

Like any other efficient remedial agent, caroid must be used intelligently and with discretion in order to obtain best results. There are some cases of infantile indigestion in which, owing to the excessively-acid condition of the stomach, the milk is curdled and expelled so quickly that the ferment is given no chance to act upon it. In such cases lime-water or some other alkali may be combined with the milk, and the ferment prescribed in solution (1 grain dissolved in sweetened water) immediately after feeding, or, better still, $\frac{1}{2}$ teaspoonful of the essence of caroid. The latter is a permanent and palatable solution of the ferment, especially serviceable, and which, when properly indicated and applied, has not failed to relieve any cases of maldigestion, however severe or various the symptoms may have been. A. W. Condict (*Med. Bull.*, Apr., 1901).

CHLORETONE IN DUSTING-POWDERS.

The use of chloretone in dusting-powders for painful granulation wounds has been wonderfully successful as far as analgesia is concerned. It does not seem to delay union or granulation, and it can be used in combination with almost any dusting-powder. It cannot be said to hasten granulation; all it does is to mitigate or entirely allay pain in the majority of cases. E. Hollingsworth Siter (*Ther. Gaz.*, Mar. 15, 1901).

CONVULSIONS WITH SCARLET FEVER.

The following is a summary regarding convulsions in scarlet fever:—

1. Every case of scarlet fever is a law unto itself.

2. Convulsions may occur and do occur when least expected, and every case of scarlet fever should be closely watched for many weeks.

3. The urine should be frequently examined, not only its specific gravity taken and albumin tested for, but urea calculation should be often made.

4. Mere specific gravity is not a sufficient indication as to the amount of urea eliminated, because the specific gravity may be fairly high, and yet urea can be retained in poisonous quantities; moreover, a large quantity of water can be voided and with a fair specific gravity, and yet convulsions may occur.

5. Albumin need not be present, or only a trace may be found in the urine, yet convulsions may occur, but the albumin will be found perhaps in great amounts after the convulsions have occurred.

6. Only the most digestible food and nourishment should be given, and if possible such foods as produce little gastric and intestinal putrefaction, the food par excellence being milk, because the amount of toxalbumins and putrefactive residue is reduced to a minimum.

7. If milk cannot be digested or will not be taken, no food should be administered for days by the stomach, simply an abundance of water, and the patient nourished by nutrient enemata. If broths are borne, chicken-broth, made after the directions of Dr. Pryor, of New York, as found in his book, is a pleasant and nutritious food.

8. In any severe case of convulsions only small amounts of nourishment, if given by the stomach, should be attempted at any one time, and frequent urea calculations should be made to see that the proper quota or equivalent of

urea is eliminated, and, if the urea is not increased after the ingestion of the food, then the food must be withheld or such food be substituted as will not interfere with the proper excretion of urea.

9. If gastric irritability exist, one should give the stomach and bowels rest, because, by giving them rest, a period of quiet also results for the kidneys, and that interval of time may be sufficient to permit the kidneys to rehabilitate themselves, either in function or to develop new renal secreting cells, as scarlatinal nephritis is a desquamative process, and new epithelial cells are no doubt often quickly formed.

10. The amount of urea passed in twenty-four hours differs in different individuals, and it may roughly be stated that an excretion of 10 grammes, or 150 grains, of urea for a child ten years old, weighing sixty pounds, will protect her from convulsions.

11. Hypodermoclysis is a very valuable and safe method to introduce water into the system, and as much as 2 or 3 pints can be used, and with proper precautions no danger will result or severe abscess-formation follow. The decinormal salt solution should be used, and should be first boiled, and the skin is to be thoroughly disinfected by washing it freely with soap and brush, and then washing again with bichloride solution 1 to 2000, and subsequently with alcohol. The needle and fountain-syringe with tube should be placed in boiling water and boiled for a few minutes to insure their perfect cleanliness.

12. Enteroclysis, or the introduction into the bowels of a number of quarts or even gallons of water, of a temperature ranging from tepid water to water of a temperature of 80°, if much fever be present, should be employed once or twice during the twenty-four hours.

13. Strychnine and digitalin are the most valuable heart-stimulants, and brandy is the best food and diffusible stimulant. H. E. Hayd (*Med. Record*, Feb. 23, 1901).

DIABETES.

Treatment. — Opium, arsenic, and bichloride of mercury are the drugs of most service. Opium, which is of the greatest general use in controlling various annoying symptoms, should not be used continually, but interruptedly. It should be given in small doses (not more than $\frac{1}{2}$ grain three times a day at first), and its constipating effect should be counteracted by cascara sagrada or other laxative. There are certain cases of diabetes, generally occurring in middle age, which were like a bacterial invasion or ptomaine poisoning. In these the bichloride of mercury has a certain, perhaps specific, value. The dose, at first small, should be increased to $\frac{1}{6}$ grain. Even if the sugar is not entirely eliminated, many patients can get along very comfortably for years. The diabetic's attention should be diverted as much as possible from himself, and he should be free from professional or business cares and other sources of worry. He should wear warm clothing and avoid fatigue and all excesses. Massage and carbonic-acid baths are often of great service, and visits to various health resorts, with the use of mineral waters to aid digestion, have a good effect. About 25 per cent. of diabetics die from phthisis. Abraham Mayer (*Boston Med. and Surg. Jour.*, Apr. 18, 1901).

DIPHTHERIA ANTITOXIN USED SUCCESSFULLY BY THE MOUTH.

It being thought that the antitoxin of diphtheria must, for successful exhibition, be hypodermically injected, the following may be useful:—

A girl, aged 14 years, having both tonsils covered with a soft, white pellicle and with no symptoms but a sore throat, very slight enlargement of the related lymph-glands, and a temperature of 38.2° C., at 11 A.M. on November 12, 1900, was given 1500 units of antitoxin by the mouth on the second day of the illness. The antitoxin had been issued by Burroughs & Wellcome in the dry state, and was twenty months old. One patch yielded the diphtheria bacillus, as was certified by the medical officer of health. Within twenty hours of giving the antitoxin the right tonsil was quite clear. No application was made nor was any gargle used to the throat. On the third day there was no pellicle to be seen, and at 11.30 A.M. the temperature was 35.8° C. On the fourth morning the temperature was 37° C. On the tonsil which was at first the most affected was seen a slight recurrence of pellicle. For this another 1500 units of the dissolved dry antitoxin were given by the mouth. She recovered uneventually and as quickly as possible.

In an earlier case, where the struggling on attempting to hypodermically inject the antitoxin of diphtheria made that method impracticable, the antitoxin was rectally injected. The benefit was equal to that in the case described above. In this case, however, diphtheria was not bacteriologically proved, but clinically it was certain. W. Campbell McDonnell (*Lancet*, Feb. 9, 1901).

EUSTACHIAN BOUGIE.

In two conditions only is the use of the Eustachian bougie advisable: Tubal stenosis and tinnitus. (The electrical treatment of deafness and constrictions by means of copper bougies and insulated catheters is not included.)

When judiciously used in these condi-

tions, the results are frequently gratifying even when all other procedures have failed.

In using the bougie, the membranous, or pharyngeal, portion of the Eustachian tube is alone involved.

Constrictions due to engorgement of the tubal veins, to simple swelling of the mucous lining, or to a folding in of the normal folds near the ostium pharyngeum can nearly always be overcome by use of the air-douche or catheter. While the use of the bougie is not particularly indicated in these cases, nor, as a rule, necessary, prompt relief will follow its application. Severe cases of thickening, however, will sometimes resist all other methods of treatment, and in these the passage of the bougie followed by the air-douche is indicated.

One of several methods may be employed: The use of graduated bougies; of rubber capsules fastened to a catheter and inflated after introduction; or the passage of bougies soaked in silver solutions. If relief does not ensue, the diagnosis of organic stricture is definite, and the repeated use of the bougie is indicated. To accomplish dilatation, the bougie must remain in position for from three to ten minutes and be passed every two or three days. Occasionally the results are bad, and upon withdrawal of the instrument there will be an increase of the swelling with aggravation of the tinnitus and deafness. In such cases the treatment must be at once discontinued.

In which cases of tinnitus a favorable result is to be anticipated cannot be foretold. In one, striking improvement will follow; in another, undue persistence will induce an aggravation of all the objectionable symptoms.

The dangers said to attend the use of the bougie are: Acute otitis media; emphysema; perforation of the membrana

tympani; dislocation of the ossicula; aggravation of the local trouble (decrease of hearing and increase of tinnitus); faintness and fainting. L. B. Lockard (N. Y. Med. Jour., Dec. 29, 1900).

FLORIDA AS A WINTER RESORT.

The following classes of persons may properly be referred to Florida for the winter months:—

1. Cases of recurring bronchitis or winter cough. These patients enjoy fairly good health during the summer months, but with the advent of the first raw days of the fall they begin to have bronchial irritation, attended, as a rule, by a dry, irritable cough and occasional paroxysms of wheezing and dyspnoea. These cases are not phthisical, but they are liable to develop more or less pulmonary emphysema with the progress of two or three winters, to the permanent impairment of their respiratory capacity. They are but slightly amenable to drug treatment. A sojourn of two or three months in Florida during the depth of the Northern winter usually results in material improvement, often in a permanent removal of the *materies morbi*.

2. A large and important class of cases, hereditary or otherwise, in which there is reason to apprehend the development of tuberculosis, even though no actual signs of the disease have set in.

3. A majority of cases of early phthisis prior to the formation of cavities. Patients showing great debility or a severe degree of anemia should not be sent to a Southern climate, nor should those in whom acute manifestations are present. As in other localities nearer home, cases in which the well-known symptoms of pulmonary tuberculosis have become prominent are not welcomed everywhere on the peninsula, but the writer knows

of no patient who has failed to find comfortable quarters.

4. Cases of so-called fibrous phthisis or chronic interstitial pneumonia. This form of pulmonary trouble progresses very slowly, and is liable to extend over a long period of years. It is not cured by the climate of Florida, but almost without exception patients receive great benefit from a sojourn of several months in that region.

5. There is a very large valetudinarian class, composed of old rheumatics, victims of subacute or chronic gout, asthmatics, and intractable cases of chronic rhinitis, pharyngitis, laryngitis, lumbago, neurasthenia, general debility, etc., who are vastly improved by a season amid the sunshine and flowers of the beautiful peninsula. J. K. Crook (*Med. News*, Jan. 26, 1901).

GASTRALGIA, ACUTE.

Treatment.—Gastralgia is essentially a condition in which it is the patient who should be treated, and not the disease. A complete change with alteration of occupation and freedom from worry will often stop the attacks. If this is impossible, and in the very people who suffer from gastralgia it usually is, the best thing to do is to rest the stomach absolutely. This should be done by keeping him lying down and feeding either by the rectum, or, if orally, by giving as little as possible. Two or three days' smart purging at the commencement has seemed to be especially valuable. For the attacks themselves morphine and cocaine may be given in a draught. Sharp counter-irritation over the stomach by blistering is often very useful. In one personal case the application of the faradic current to the pit of the stomach completely removed the pain in a few minutes, but it did not stop the recur-

rence of the attacks. T. Sidney Short (*Birmingham Med. Review*, Apr., 1901).

GASTRECTASIS, GASTROJEJUNOSTOMY IN.

Conclusions regarding gastrojejunostomy in gastrectasis are as follow:—

1. Cancer of the pylorus, even though removed, returns quickly, and always kills. Pylorotomy is attended by a high mortality, and is not a justifiable surgical procedure in advanced carcinoma of the pylorus. Gastrectasis due to a malignant closure of the pylorus is best treated by a gastrojejunostomy. The operation as advised by Wolfner or von Hacker best meets the conditions.

2. It is not necessary to twist the bowel, in making the anastomosis, to prevent bile from entering the stomach.

3. The anastomotic opening in the stomach should be at the most dependent point of the dilated organ. The operation is attended by a low mortality. In all cases in which marked dilation of the stomach exists, accompanied by emaciation, pain, and invalidity, the operation of gastrojejunostomy should be performed. The relief of pain, due to the effort of the stomach to relieve itself, follows this procedure at once. The patient gains rapidly in weight, and if the disease is non-malignant his former good health is restored. A. H. Cordier (*Amer. Medicine*, Apr. 13, 1901).

HÆMORRHOIDS, OPERATION FOR.

The Smith operation of clamp and cautery for hæmorrhoids when properly executed is one of the most satisfactory in surgery. The technique of the operation to be described is somewhat different from that of most operators; yet, having employed it in over three hundred cases, the method is thoroughly recommended. The evening before the op-

eration the patient is given 1 ounce of castor-oil; in the morning he receives an enema.

Under general anaesthesia the anus is thoroughly stretched and the rectum cleansed. Forceps are attached to each hæmorrhoid, the pile-clamps are applied, and the pile is burned evenly and slowly down to a solid button above the bite of clamp (baked would probably be a more expressive term), never burning off smoothly along the clamp and never cutting off a pile with scissors previous to burning, although the skin may be cut to the subcutaneous tissue, if involved.

The small soldering irons are found to be the best for the purpose. Usually three groups of vessels need to be destroyed, anteriorly, and laterally and with a little practice all the hæmorrhoids can be grasped and included in three eschars. To prevent future contraction at least three separate one-half inches of mucous membrane in normal condition should line the anal opening. No more than four large piles, as a rule, should be removed by this method. If there be other small piles between, they can be punctured with the small point cautery. The surrounding parts are protected from excessive heat or accidental slipping of the iron by a square of asbestos cloth with a cut in one side to allow it to slip beneath the clamp. A little vaselin is applied to the anus on gauze and the patient put to bed. No tube or pack is inserted into the rectum; the operator who employs them has had reason to fear hæmorrhage, which is an occasional occurrence where the tops of the piles are cut away before cauterization or when they are not all marked at first with forceps, necessitating search and disturbance after some of the eschars are properly placed. Morphine is not often

needed, but may be given the first day, if necessary, for pain. The bowels are moved on the fourth day by castor-oil. The only dressing is a little vaselin on cotton applied to the external parts. C. H. Mayo (*St. Paul Med. Jour.*, Mar., 1901).

HEROIN.

Heroin and heroin hydrochloride can be used with very good results in all disorders of the respiratory organs; they combat the cough and dyspnœa. In hæmoptysis they will often check hæmorrhage where other remedies fail. To avoid unpleasant after-effects, which are very rare in adults, heroin should be given always after meals. Heroin is also a very valuable drug in diseases of children, but the dose should be as small as possible. Heroin should be tried in whooping-cough, being of decided benefit in many cases, reducing the number of attacks, or at least influencing their duration and severity. Heroin and heroin hydrochloride, especially the latter, when used hypodermically, act promptly in bronchial asthma. I. J. Martinson (*N. Y. Med. Times*, Jan., 1901).

ILEUS DUE TO MECHANICAL OBSTRUCTION.

Diagnosis.—Mechanical ileus must be differentiated from ileus due to paralysis of the afferent nerve, vascular ileus, dynamic ileus, post-operative ileus, lead-colic ileus, adynamic ileus, septic ileus, paralytic ileus, reflex ileus, strangulated hernia, irritant poisoning, and perforative peritonitis. A careful consideration of the antecedent history enables one frequently to make an accurate diagnosis of the special variety of ileus in a given case, but too often the differential diagnosis is made by the aid of a laparotomy or a post-mortem section.

In ileus due to bands or adhesions there is usually a history of plastic peritonitis due to hernia, a salpingitis, an appendicitis, or gall-stones, an ovariotomy, or some intra-abdominal operation that was followed by an abrasion of the endothelial coat of the intestine, and adhesions to an adjacent loop, or to an uncovered stump or pedicle that directs attention to compression from without. Post-operative dynamic ileus cannot be differentiated. In ileus due to compression of the bowel in a slit or opening there may be a history of abdominal traumatism also.

In volvulus there is the age of the patient,—forty to sixty,—chronic constipation, and the enormous early distension of the abdomen, to guide one as to the location and probable cause of obstruction.

In intussusception there is the sudden onset of symptoms during infancy, childhood most frequently; the characteristic tenesmus and desire to evacuate the bowels, the fæces consisting of simply mucus and then muco-sanguinolent, with the marked exacerbations of peristalsis and pain, and the history of previous diarrhoea and excessive peristalsis. A lozenge-shaped tumor can be felt; obstruction from foreign bodies usually gives a fairly clear history of gall-stones, or the swallowing of fruit-pits, or the imbibition of magnesia and chalk for a long time, or obstipation. D. A. K. Steele (*Annals of Surg.*, Apr., 1901).

JAUNDICE, CATARRHAL.

Treatment.—The dietetic management of catarrhal jaundice is of the greatest importance. Fats, sweets, starches, pastries, and highly-seasoned dishes should be reduced to a very low point, or entirely prohibited. Patients usually do

much better upon a dietary of lean meat, fruit, and a moderate amount of milk not too rich with cream. Buttermilk, lemonade, green vegetables, with crackers or toast, will make an ample bill of fare. The amount of food given should be small, but water should be allowed freely, particularly the alkaline and saline waters, such as the French Lick, Carlsbad, Apenta, Congress, or Hunyadi.

The bowels should be opened at least every other day with a mild aperient or laxative. For this purpose calomel may be selected.

Intestinal antiseptics may be found necessary in those cases in which flatulence and gaseous fermentation in the intestines are present.

In persistent and prolonged cases the daily irrigation of the bowel with 1 or 2 quarts of cold water by means of enteroclysis has been very highly recommended.

Another kinesitherapeutic measure of some value that may be used is to make firm, but gentle, pressure upon the distended gall-bladder through the abdominal walls, and thus remove the obstacle. In certain selected cases massage will undoubtedly hasten recovery. However, pressure is not recommended when a positive diagnosis of gall-stones has been made. Pressure in no case should be made with sufficient force as to incur any risk of rupture or perforation of the gall-bladder.

Faradization over the gall-bladder may sometimes be found useful by exciting spasmodic contractions of the muscular coat of this viscus.

Of all the myriad remedies in the modern materia medica, sodium succinate succeeds surprisingly in these cases. It may be prescribed in 5-grain doses every three hours, in solution with water containing some pleasant aromatic

flavor. C. F. Hope (Med. Council, Feb., 1901).

LAVAGE OF THE STOMACH IN NURS-LINGS.

Lavage of the stomach produces little or no effect with chronic gastro-intestinal lesions associated with more or less pronounced athrepsia. The same may be said of cases of acute dyspepsia which begins not with gastric, but with intestinal, symptoms, such as colic, meteorism, and green stools.

But a condition of acute indigestion encountered in artificially-fed children suddenly seized with repeated vomiting, anorexia, and signs of collapse is different, as in these cases there exists frequently a certain sluggishness of the stomach preventing the onward passage of the food. Neither emetics nor purgatives are so satisfactory. The fluid used should always be a physiological solution of sodium chloride or a solution of sodium bicarbonate of the strength of 0.7 per cent., appropriately warmed. The pressure should not exceed that of a column of water 20 centimetres in height. Heubner (*Revue Mensuelle des Mal. de l'Enfance*, Nov., 1900).

LUMBAR PUNCTURE.

The point selected for the puncture should be one of the three lower lumbar spaces, and the tip of the needle should point in such a way as to do the least damage. Unless the patient is comatose or delirious the sitting posture should be assumed and the body bent far forward. The operator should stand on the right side of the patient. The skin should be anaesthetized with cocaine, but general anaesthesia is entirely unnecessary. At the lumbo-sacral space the fluid is found richer in sediment. In selecting the site for the puncture the operator may count

the spinous processes from the twelfth dorsal vertebra, to which is attached the last rib, downward; or he may take a line across the highest point on the iliac crests. The latter passes near the edge of the fourth lumbar spine. An anti-toxin needle should be introduced a little to one side of the median line, its point being directed upward and toward the median line. For purposes of diagnosis it is only necessary to remove 10 or 15 centimetres of fluid. L. A. Conner (*Pediatrics*, Mar. 1, 1901).

MERCUROL.

Mercurol is a brownish-white powder, soluble in water, but insoluble in alcohol. It is a compound of mercury with nucleinic acid, and contains about 10 per cent. of mercury; therefore a 5-per-cent. solution of mercuriol contains $\frac{1}{2}$ per cent. of mercury and this in a form which is non-corrosive and non-irritant. It is at the same time an organic compound, and does not precipitate albumin. Solutions of mercuriol cannot be made up in large quantities, a week being probably the longest time in which it can be kept with safety. It has been personally used in three cases of acute suppurative otitis immediately after incising the membrana tympani, and they were all cured within ten days, the most rapid being four days. Mercuriol is the least irritating efficient antiseptic personally known, being possessed of properties which commend it highly, especially as a lotion for the irrigation of cavities such as the maxillary sinus. R. Lake (*Lancet*, Dec. 15, 1900).

MYASTHENIA GRAVIS.

Treatment.—The symptoms of myasthenia gravis are always rendered worse by bodily exercise and mental excitement. Hence, complete rest for mind and body should be the aim of treat-

ment. The patients are from the very first in imminent danger of death, and their relatives should be warned of this, otherwise the deceptive lulls in the symptoms may encourage fatal indiscretions. Frequent physical examinations may have disastrous results. Meals should be small, easily assimilated, and given at short intervals. The use of the stomach-tube is dangerous, and, should deglutition become impossible, rectal feeding is the only course to pursue. Stimulant methods of treatment by cold douching and faradism are absolutely contra-indicated. Massage and galvanism have proved useless. None of the drugs hitherto employed appear really to influence the course of the disease. Strychnine has been used without benefit by Strümpell and Dr. Buzzard. Personal patient improved under strychnine at first, but subsequently relapsed while still taking it. Thyroid and suprarenal extract have proved also ineffectual. Tonics, such as arsenic and iron, have no specific action. Perhaps a more extended trial of suprarenal extract might be worth making. Other organic extracts, such as cerebrin, myelin, didymin, and ovarian substance may also conceivably be of service in a toxæmia which produces no visible changes in any part of the nervous system. Failing these medicaments, one can only hope that the toxin of myasthenia gravis may be traced to its source, isolated, and its antidote found in the chemical and physiological laboratories. Morbid anatomy has thrown no light on the nature of the disease. L. G. Guthrie (*Lancet*, Feb. 9, 1901).

NEWBORN CHILDREN, CAUSE OF DEATH IN.

In the majority of cases of hæmorrhage in the newborn the condition has

an infectious origin. While it is probable that hæmorrhagic disease of the newborn is most commonly of an infectious nature, it is unquestionably true that there are other ways of accounting for the isolated hæmorrhages into the suprarenal glands; the location of the organ, the richness of its blood-vessels, especially of its veins, the proximity of the inferior vena cava which receives the blood almost directly from the gland on the right side, are probably indirectly responsible for the majority of these hæmorrhages. As Droubaix has suggested, it is easy to understand how during labor pressure can be brought to bear upon the inferior vena cava and the suprarenal gland, located, as they are, between the liver anteriorly and the vertebral column posteriorly, thereby giving rise to congestion of the vessels of the glands which, in some instances, may result in hæmorrhage. S. M. Hamill (*Pediatrics*, Feb. 15, 1901).

PEMPHIGUS.

Treatment.—Each bleb is to be opened as widely as possible, and laid bare by removing its covering. A wet dressing of bichloride of mercury 1 to 2000 or 1 to 4000 is then applied and kept in apposition from twenty-four to forty-eight hours. The dressing is then removed, and ichthyol, either pure or in a 20- to 50-per-cent aqueous solution, is applied. After a few days this is changed for a simple zinc-oxide paste or ointment, or occasionally a eucrophen or iodoform ointment.

When the eruption is extensive, one limb or a fraction of the surface may be treated at a time. Thus, the arm may be undergoing the bichloride treatment while the leg is dressed with ichthyol, and the face or body with oxide-of-zinc paste. If there is any danger of absorp-

tion over a large surface, the above procedure would tend to obviate this.

Other bulbar eruptions and pseudopemphigus, which are much more common than the genuine disease, may be treated by this method or at least on this principle, with decided advantage. Arthur Van Harlingen (*Ther. Gaz.*, Mar. 15, 1901).

PUERPERAL FEVER.

Treatment.—In the treatment of puerperal fever one must first enjoin perfect rest, and search for the seat of infection. If the latter is then found to be located about the vagina or vulva, the part should be wiped with absorbent cotton moistened with some antiseptic solution that is not caustic, and then dusted with aristol or some similar antiseptic powder. Where the seat of infection is covered with a grayish-white membrane the case is more serious than where there is simply a free pus-formation. If no infection can be found about the entrance to the genital tract, the vaginal mucous membrane and the vaginal portion of the cervix should be minutely inspected, care being taken not to reopen small wounds. If the examination is still negative, and the patient's condition good, the physician should wait and watch, remembering that the retained placental tissue is often soon expelled spontaneously. If, however, her condition is not good, the interior of the uterus should be examined under strict antiseptic precautions. The use of the curette in cases of septic endometritis is strongly opposed. An intra-uterine douche should be given both before and after the intra-uterine manipulation, and ordinarily it is better not to repeat this douche. The exception to this rule is found in those cases in which the temperature remains high and there is a free

purulent discharge from the uterus. If the infection is localized in the pelvic cellular tissue or the pelvic peritoneum, the ice-coil and inunctions of Credé's ointment of metallic silver will be beneficial. H. J. Boldt (*Boston Med. and Surg. Jour.*, Feb. 21, 1901).

PULMONARY OSTEO-ARTHROPATHY.

Diagnosis.—Pulmonary osteo-arthritis may give rise to some little difficulty in diagnosis, principally owing to its rarity. It is most likely to be confounded with acromegaly, but in the latter disease there is no alteration of the nails nor are the finger-ends clubbed nor the carpus and metacarpus much thickened. The chief characteristics of the disease are great enlargement of the hands, wrists, feet, and ankles, associated with and secondary to some chronic pulmonary affection, such as phthisis, chronic bronchitis, and empyema. In the joints the changes are effusion with enlargements and ulceration of the cartilages and articular ends of the bones. Marie is of opinion that these changes are due to toxic poisoning, but Thorburn looks on them as tuberculosis. The evidence either way is slight and indefinite. G. A. Bannatyne (*Lancet*, Feb. 23, 1901).

RHEUMATISM, BACTERIOLOGY OF ACUTE ARTICULAR.

After studying the mucus from the tonsils in cases of rheumatism, the following conclusions are reached: That diplococci which grew as streptococci were found in the tonsillar mucus in cases of rheumatism, but not in other cases; that they produced a sero-purulent, usually sterile, exudate in the joints which did not proceed to sepsis; that the bacteria have a peculiar affinity to the serous membranes and the endocardium

in particular, and that this makes it probable that they have a close relation to actual articular rheumatism. F. Meyer (*Deut. med. Woch.*, Feb. 7, 1901).

SQUINT.

Treatment.—The proper procedure in all cases of squint, excepting, perhaps, paralytic, in which it does not play so important a part, would be to determine whether there was present any error of refraction. If one is familiar with the use of the ophthalmoscope this can be readily done, but if not familiar with the use of this instrument, or if a refractive error be present, 1 drop of a solution of atropine, 4 grains to the ounce, should be instilled into each eye night and morning and the child protected from strong light; in fact, dark glasses should be worn out-of-doors if the child be old enough to keep them on. Should the squint disappear, or become very much better, it will prove that an error of refraction is present in the case, and the patient should be carefully glassed as soon as it is old enough to keep the glasses on. Should the patient be too young to be glassed the atropine instillations, in half-strength, can be kept up at varying intervals in the meantime in order that the strain upon accommodation may be relieved.

If the wearing of glasses for several weeks fails to correct the defect, a system of muscle-gymnastics known as "orthoptic exercises" should be employed. The apparatus required is an ordinary box stereoscope with a series of double pictures. The patient is first taught to recognize both pictures on the cards, or to see double, thus showing that both eyes are used at the same time, and after this has been accomplished to fuse the two pictures into one. This method is of very little use in cases of

high degree of squint in which the glasses produce but little change; but in cases of low degree, or in cases much benefited by the wearing of glasses, or in cases of residual squint after operation, it is of the greatest value.

Should the wearing of the proper glasses and the faithful systematic employment of orthoptic exercises fail to cure the squint, recourse must be had to operative measures. This usually consists of a tenotomy of one muscle or an advancement of its opponent, or both. If the defect is convergent, the eyes should not be entirely straightened at the operation, but a small amount of residual squint permitted to remain, as there is always a slight tendency to divergence. For the same reason in operating for divergent squint it is better to produce a slight convergence. It is best to wait until the child is about six years old. C. A. Veasey (*Phila. Med. Jour.*, Mar., 1901).

THYROID GLAND, CARCINOMA OF THE.

Diagnosis.—The extremely high mortality that obtains in cancer of the thyroid is, in a large measure, dependent upon the failure to make a diagnosis sufficiently early to allow of successful surgical treatment. In the first stage of development of the growth a positive differentiation from non-malignant struma cannot always be made. The symptoms of benign struma in nearly all cases antedate those of the malignant form, and, unless the distinctive characteristics of the latter are carefully searched for, the malignant nature of the disease may easily be overlooked. In most instances, even in the early stage of the disease, certain symptoms are characteristic of malignant growths. Of these there are:—

1. Rapid growth in a goitre that previously remained stationary for some time, especially in a person between the thirtieth and fiftieth years of life.

2. In nearly all cases pain is greatly augmented if the growth becomes malignant. It is usually referred to the ear, teeth, and temporal region. At times it radiates down the arm or is referred to the sternum. In the latter case there is usually a retrosternal tumor, either primary or secondary. In one of Lebert's cases, pain in the stomach was a prominent symptom, and was believed by him to be due to pressure on the vagus nerve.

3. Tenderness on pressure has been present in nearly all of the cases reported. In non-malignant struma the gland is not sensitive.

4. All of the pressure symptoms that may accompany benign growths are usually exaggerated in carcinoma. This is particularly true in the rapidly growing tumors, but is also present in those of small size and slow growth. Dysphagia, where a symptom of thyroid enlargement, is considered by Lucke as indicating either malignant disease or strumitis. Recurrent paralysis, which is a rare complication of benign goitre, is common in the malignant form. Dyspnoea occurs early.

5. Thrombosis of the veins, first, those conveying the blood from the diseased portion of the gland, and later of the jugulars and cutaneous, is a usual accompaniment of cancer of the thyroid. This may occur in rare cases in benign growths in old and poorly nourished individuals. In carcinoma it is a constant and valuable sign. Hahn calls attention to this symptom, and reports two cases from Bruns's clinic in which the diagnosis was made, in one of cancer and the other of sarcoma, by excising under local anaesthesia a portion of a thrombosed cu-

taneous vein and submitting it to a microscopical examination. When the thrombosis of the deeper veins is present, metastasis through the vascular system has already occurred and the disease is no longer amenable to surgical treatment. Resulting from this thrombosis there is oedema of the face and neck and occasionally of the upper part of the thorax.

6. Enlargement of the lower cervical lymphatics associated with a tumor of the thyroid is strongly presumptive of malignant disease and speaks for carcinoma rather than for sarcoma. Glandular involvement in carcinoma may occur before the primary tumor is palpable. The glands are, as a rule, hard and painful on pressure.

7. Fever, either of a continuous or remittent type, is mentioned by most writers on the subject.

8. There is nothing characteristic in the size, shape, or consistency of carcinomatous tumors of the thyroid. In some the growth is large and soft; in others irregular and nodular, with areas of softened tissue corresponding to the foci of degeneration. As a rule, the tumors are of small size and moderately hard. They only rarely involve the whole gland, and seldom invade the skin. Great vascularity of these growths is seldom seen. Lebert emphasizes the early appearance of cachexia, while Kaufmann holds that it occurs later than it does in carcinoma of other organs.

If any serious doubt exists, exploratory puncture may be made. The dangers of puncture in such cases are hæmorrhage, infection, and dissemination of carcinoma-cells through the body. Again, after puncture the disease frequently spreads rapidly along the track of the instrument and involves the skin. Excision of a lymphatic gland or of a

thrombosed vein can usually be made without danger to the patient. Microscopical examination of these structures would conclusively settle the question of diagnosis. In the differential diagnosis, besides benign goitre, one must exclude sarcoma and subacute thyroiditis. It is frequently impossible to exclude sarcoma without microscopical examination of the tumor. Rapid growth of the tumor which usually involves the whole gland, and absence of lymphatic involvement, argue for sarcoma. In differentiating carcinoma from thyroiditis one must first exclude every possible source of infection. In both there may be temperature; in thyroiditis areas of softening quickly appear. Puncture will then determine the presence of pus. Again, in thyroiditis the cervical lymphatic glands, if enlarged, are sensitive, soft, and quickly suppurate. A. E. Halstead (West. Med. Rev., Feb. 15, 1901).

VAGINAL INJECTIONS, HOT WATER.

No therapeutic measure is so frequently misapplied, so thoroughly abused, so imperfectly understood as the hot-water vaginal injection. Employed conscientiously and in accordance with the rules of common sense, it is one of the most valuable remedies at our command; employed as it is in ninety-nine cases out of one hundred, it is capable of doing infinite harm.

One cannot conceive of a greater error than that of prescribing a two-quart hot-water vaginal douche for any purpose whatever other than that of producing pelvic congestion or preserving cleanliness.

In those cases in which the therapeutic douche is indicated, the patient is personally given a printed slip containing rules to be observed in taking the injec-

tions, cautioning her that the directions must be followed to the letter.

A copy of these follows:—

1. Use a large-sized fountain-syringe or douche-can attached to a support three or four feet above the body.

2. Always lie flat on the back when taking a douche, with the hips slightly elevated and the shoulders depressed.

3. Always use at least *three gallons* of plain water as hot as can be borne (at a temperature of from 107° to 120° F.) for each douche.

4. Take the injection twice daily, morning and evening, except on the two days preceding and the two days following the menstrual period, when it should be omitted.

5. Rest for half an hour or an hour in a recumbent position after taking each douche.

The frequent filling of the fountain-syringe in order to use so large a quantity of water is inconvenient and wearisome, and, therefore, the substitution of an ordinary pail for the bag is usually suggested, the water being conducted from it by siphonage, or better, through a short pipe inserted in the side close to the bottom. A hard-rubber vaginal nozzle, perforated at the sides rather than at the end, is to be preferred in taking these douches.

The most convenient method to adopt is that of taking the douches in a bathtub, provided it is of sufficient size. A couple of bricks covered with oil-cloth will serve to raise the hips sufficiently, but a tightly-rolled blanket is better, as it prevents the water from flowing toward the head of the tub, and so keeps the body dry. In the case of dispensary patients, one may suggest the use of an ordinary wooden wash-tub, two boards being stretched across it a couple of inches apart, upon which the woman lies

flat, her legs being flexed, and the waste-water finding its way into the tub between the boards.

The three-gallon hot-water douche is of special value in cases of acute or chronic metritis, in subinvolution, in perimetritic inflammation, and in perimetritic and parametritic exudations. Ovarian pain will frequently yield to it in a surprisingly satisfactory manner, while the bearing-down sensation and pain in the back, concomitants of disorders of the pelvic organs, very quickly disappear.

A troublesome leucorrhœa, in a majority of instances, will be checked after a very few applications of the douche.

As a rule, the water should be used without the addition of any medicament whatever, but, if the accompanying leucorrhœal discharge is profuse, a tablespoonful of the following mixture is to be added to the last quart of water remaining in the douche-bag at the termination of the injection:—

R Powdered alum,
Zinc sulphate,
Sodium biborate,
Carbolic acid, of each, 1 ounce.
Water, 6 ounces.—M.

The addition of a small quantity of ordinary table-salt to the water often acts well. In the elytritis characterized by a free discharge of acid reaction, containing shreds of epithelium and numerous bacteria, the use of an alkaline douche is indicated, and nothing better serves the purpose than bicarbonate of sodium: 1 level teaspoonful to each quart of water used. Bichloride of mercury, lysol, creolin, or other antiseptic agents, even in very weak solutions, with the sole exception of weak carbolic acid, should never be employed constantly in the ordinary therapeutic douche.

Large hot-water vaginal irrigations

should never be employed by a healthy pregnant woman, for the reason that they reduce the bactericidal power of the vaginal secretions. J. H. Burtenshaw (N. Y. Med. Jour., Apr. 20, 1901).

VERTEX POSITIONS, THE MANAGEMENT OF ARRESTED POSTERIOR.

In the management of arrested posterior positions of the vertex, an accurate diagnosis is the first step, insufficient flexion of the head being the most usual cause of delay. When the head is above the brim of the pelvis one of four procedures is to be chosen: 1. External manipulation, with posture, etc. 2. Internal manipulation, with posture, etc. 3. The application of forceps. 4. Podalic version. In the hands of the general obstetrical practitioner podalic version will, as a working rule, give the best results. Forceps must be used in some cases. In cases where the occiput is arrested in front of the sacrum, forceps as rotators have been used during the past three years with satisfactory results. This manipulation has been done repeatedly without producing extensive lacerations of the soft parts and with no greater danger to the child than is incurred in other procedures. Reversed forceps applications should not be made even by skilled operators. Rotation by forceps has been condemned very generally, but three years' use has proved its practicability. The Tucker solid-blade instrument is used for this purpose. The handles are deflected toward the side enough to keep the tips of the blades always in the median line of the pelvis. Rotation and traction are used until the R. O. A. position is reached. The forceps are then unlocked and readjusted if necessary. In cases where the head is low down the solid blades are applied to the sides of the head and gradual ro-

tation applied, taking care to keep the head well flexed. The danger in these cases is that the trunk will not rotate. The head must be held after rotation until several expulsive efforts have been made and the trunk rotated. These manipulations were demonstrated on a manikin. R. C. Noble (Phila. Med. Jour., Mar. 23, 1901).

WHOOPIING-COUGH.

Treatment.—The benefit derived from creasote-vapor is very soon apparent. In many cases a cure is effected in five or six days; in very virulent attacks it may require as many weeks, though this is exceptional. It does not interfere with other methods of treatment. The inhalation appears to be free from danger except where the chest is full of moist sounds, in which case its action should be carefully watched. No fresh case of infection has been seen to arise in a family the healthy members of which have been exposed to the influence of the vapor.

Creasote-vapor can be employed in various ways: with steam by means of a kettle or steam-spray producer, by use of a dry or moist inhaler, by sprinkling on a cloth hung up to dry in a room, by vaporizing over a spirit-lamp, etc. All these means are more or less effectual, but the more continuous the inhalation, the better the result obtained.

The method of treatment personally found most satisfactory is the following: One should commence at once with the continuous inhalation of creasote by suspending creasote-cloths both in the day and night chambers. The density of the vapor employed can easily be regulated by varying the number of cloths. Any accompanying bronchitis should be treated, and the lungs cleared of all

moist sounds as much as possible before using any special internal antispasmodic remedies. Antipyrin may be given in suitable doses in all cases where the lungs are fairly clear, provided that the circulation is good. Expectorants may be combined with the antipyrin. The chest and upper part of the spine should be treated by counter-irritation. Good air, warm clothing, light and wholesome food are necessary in all cases. J. E. Godson (Birmingham Med. Review, Apr., 1901).

ZONA, BLOOD IN.

In zona there are no marked changes in the number of red corpuscles or in the percentage of hæmoglobin; nor do the red blood-corpuscles present any recognizable alteration. The white corpuscles are above the normal on the first day of the eruption. This hyperleucocytosis increases until about the third day, then it decreases gradually up to the fifth day. If the contents of the vesicles become purulent, the number of leucocytes diminishes. The period of desiccation and desquamation is marked by a second hyperleucocytosis. At the end of about two weeks the blood resumes its normal character. In the clear vesicles on the first day of the eruption the fluid was found to contain 79 per cent. of polymorphonuclear neutrophiles, 19 per cent. of lymphocytes, 1 per cent. of large mononuclears, while the eosinophiles are very few in number or completely wanting. During the following days the percentage of polymorphonuclear neutrophiles increases to 96 per cent. On the sixth day the contents of the vesicles presented disintegrating polymorphonuclear neutrophilic cells associated with eosinophiles undergoing disintegration. Sabrazès and Mathias (Revue de Méd., Mar. 10, 1901).

"RUDOLF VIRCHOW FUND."

To the American Medical Profession:

On October 13, 1901, Rudolf Virchow will be eighty years old. When he completed his seventieth year a fund was started in his honor to enable the great master to facilitate scientific research by establishing scholarships, and by encouraging special medical and biological studies. Contributions to that "Rudolf Virchow Fund" were furnished by those in all countries interested in progressive medicine, as a homage to the man whose name is always certain to arouse admiration and enthusiasm.

In Berlin a large committee—containing among others the names of A. Bastian, v. Coler, A. Entenburt, B. Fraenkel, O. Israel, Fr. Koenig, C. Posner, and W. Waldeyer—has been formed to call for contributions which are to be added to the original "Rudolf Virchow Fund" so as to increase its efficiency. The committee expresses the opinion that in no better way, and in none more agreeable to the great leader of modern medicine, can his eightieth birthday be celebrated, and ask for the sympathy and co-operation of all those engaged in the study and practice of scientific medicine all over the globe.

The undersigned have formed a subcommittee for the purpose of making the American profession acquainted with the intentions of the Berlin committee, and urge their colleagues to participate in honoring the very man who has done more, these fifty years, than any other to make medicine a science, and international.

Subscriptions should be sent to their secretary, who will receipt therefor.

CHARLES A. L. REED, President of the American Medical Association.

HENRY P. BOWDITCH, President of the Congress of American Physicians and Surgeons.

WILLIAM K. WELCH, Johns-Hopkins University.

ROBERT F. WEIR, President of the New York Academy of Medicine.

A. JACOBI, secretary, 110 West Thirty-fourth Street, New York City.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Functionally Good Results in the Treatment of Fractures as Viewed by Sciagraph and Photograph. By B. N. Torrey, Creston, Iowa, 1900.—A Peculiar Case of Appendicitis. By B. N. Torrey, Creston, Iowa, 1899.—New Points in the Anatomy and Histology of the Rectum and Colon. By J. R. Pennington, Chicago, 1900.—Intestinal Antisepsis in Typhoid Fever. By J. M. Anders, Philadelphia, 1900.—History of Typhoid Fever, with Statistics. By J. M. Anders, Philadelphia, 1900.—Gallstone Crepitus and Friction, with Illustrative Cases. By J. M. Anders, Philadelphia, 1899.—A Sketch of Dr. Alfred Stillé. By Charles W. Burr, Philadelphia, 1901.—An Atypical Case of Multiple Sclerosis. By C. W. Burr and D. J. McCarthy, Philadelphia, 1900.—Asthenic Bulbar Palsy. By C. W. Burr and D. J. McCarthy, Philadelphia, 1901.—Tuberculosis of the Testicle, with Special Consideration of its Conservative Treatment. By J. B. Murphy, Chicago, 1900.—Chloralamid. By S. V. Clevenger, Chicago, Ill., 1900.—Phototherapy in Cutaneous Medicine: An Account of a Visit to Professor Finsen's Light-Institute at Copenhagen. By H. W. Stelwagon, Philadelphia, 1900.—Treatment of Lupus by the Concentrated Light-rays. By H. W. Stelwagon, Philadelphia, 1900.—Treatment of Skin Cancers Without Operation. By H. W. Stelwagon, Philadelphia, 1900.—A Report of Two Cases of Persistent Exfoliation of the Lips. By H. W. Stelwagon, Philadelphia, 1900.—Report of a Case of Blastomyetic Dermatitis. By H. W. Stelwagon, Philadelphia, 1901.—Hypertrophy of the Turbinate Bodies, and their Relations

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Cyclopædia of the Year's literature.

DYSENTERY.

Symptoms.—According to S. M. Long,¹ there are five types of tropical dysentery.

The first type, the fulminating catarrhal dysentery, is the most fatal. The attack is very sudden, with a high

temperature, rapid pulse, flushed face, tongue heavily coated, great prostration, and rapid emaciation; about fifty or more bowel movements a day, first watery, gradually becoming bloody and

¹ N. Y. Med. Jour., Mar. 30, 1901.

slimy. There is great tenderness all over the abdomen, with tenesmus in the rectal region. There is sometimes vomiting, which is very persistent.

The second type is simple acute dysentery. It starts as a diarrhœa, and is often associated in the same subject with malarial fever. In the beginning these cases are very easy to cure; yet they are the ones that become chronic. There is no rise of temperature to speak of. The tenderness is very slight over the abdomen. There is some tenesmus, and the stools become bloody two or three days after the attack.

The third type, generally called the amœbic type, can be divided into four different classes: (*a*) the amœbic, (*b*) the trichomonadic, (*c*) the cercomonadic, and (*d*) the mixed. The amœbic dysentery is the one most prevalent in tropical and semitropical countries. It gives no warning, and, when once established, it is very hard to dislodge. While not very fatal in the start, in the long run it is the worst type, "the fulminating type excepted," of all the dysenteries, becoming the mixed type in its chronic stage. It is specially prone to cause liver-abscesses. It has a tendency to become chronic and to kill the patients, either by its numerous ulcers perforating or producing excess of toxin in the system; by metastatic abscesses in other organs, especially the lungs; by paralysis of the intestines, or from inanition.

In the trichomonadic class the infusorium trichomonas intestinalis generally predominates in the stools. It is very obstinate to treatment.

In the cercomonadic class the cercomonas intestinalis is found in the stools. When associated with the streptococcus, it is very deadly.

The mixed class, so called, is the one that presents in the stools, besides the

amœba, the bacillus pyocyaneus and the staphylococcus. This type is very fatal on account of its complications.

From the foregoing classes the following types are obtained:—

The fourth type, or the chronic dysentery, so called, though mostly a sequel of the acute and amœbic forms, should be regarded as a class by itself, and treated accordingly.

The fifth type, which consists of the gangrenous and diphtheritic, is generally fatal, either from perforation, from general peritonitis following, or from toxæmia. The patients pass large shreds of membranes. In such cases there is a very weak and rapid pulse, the expression is very anxious, and the temperature rises in the evening up to 104° F.; there is also persistent vomiting, with an agonizing pain and tenderness over the abdominal region. The bowels move very frequently, passing blood and mucus in small amounts.

Etiology. — Deycke,² from studies in Constantinople, notes an organism which is always to be found in the stools, intestinal walls, and abdominal organs of dysenteric patients. In pure culture it seems to belong to the group of the bacterium coli and to resemble the typhoid bacillus. Cats inoculated with the germ suffer one to three days with bloody or purulent diarrhœa, with extreme emaciation, and die with the same intestinal lesions as those accompanying human dysentery.

J. J. Curry³ has observed two distinct types of dysentery in the Philippines, one amœbic dysentery and the other an acute dysentery, in a number of cases of which the bacillus dysenteriae of Shiga occurred. In addition to these two types

² Deutsche med. Wochen., Jan. 3, 1901.

³ Boston Med. and Surg. Jour., Feb. 21, 1901.

cases of subacute and chronic dysentery have been met in which neither the *amœba coli* nor the *bacillus dysenteriae* was found.

William Osler⁴ has had six cases of the ordinary type of so-called amœbic dysentery, but the blood did not react with Shiga's bacillus, which would indicate distinctly that the disease is separate and distinct from the dysentery as met with in the tropics.

Simon Flexner⁵ says we may sum up the present knowledge of the cause of dysentery in the following way:—

1. No bacterial species yet described as the cause of dysentery has an especial claim to be regarded as the chief micro-organism concerned with the disease.

2. It is unlikely that any bacterial species that is constantly and normally present in the intestine or in the environs of man, except where the disease prevails in an endemic form, can be regarded as a probable cause of epidemic dysentery.

3. The relations of sporadic to epidemic dysentery are so remote that it is improbable that the two diseases are produced by the same organic cause.

4. The pathogenic action of the *amœba coli* in many cases of tropical and in certain examples of sporadic dysentery has not been disproved by the discovery of amœbæ in the normal intestine, and in diseases other than dysentery. While amœbæ are commonly present and are concerned in the production of the lesions of subacute and chronic dysentery, they have not thus far been shown to be equally connected with the acute dysenteries, even in the tropics. In the former varieties bacterial association probably has much influence on the pathogenic powers of the amœbæ.

Complications.—J. J. Curry⁶ states that the most frequent complication of dysentery in the Philippine Islands is

malaria. A malarial spleen and active malarial parasites were found in 4 out of 66 cases of chronic amœbic dysentery which came to autopsy, and once in 12 cases of subacute (non-amœbic) dysentery. In 157 cases of chronic and subacute dysentery among soldiers sick in the First Reserve Hospital, Manila, in which blood-examinations were made, the malarial parasites were found in 36, or in nearly 23 per cent.

Typhoid fever and amœbic dysentery combined occurred twice in the 66 cases. In both cases at autopsy typical lesions of acute typhoid fever were found in the ileum, and there were characteristic ulcers of amœbic dysentery in the colon. In a third case there were recent healed typhoidal ulcers in the ileum and amœbic dysentery.

Acute lobar pneumonia occurred once in this series of 66 cases of amœbic dysentery.

There were 2 cases of active and quite extensive pulmonary tuberculosis found in the series of 66 amœbic cases. One case was that of a triple infection (amœbic dysentery, typhoid fever,—acute stage,—and pulmonary tuberculosis). In this latter case, which came to autopsy, active amœbæ were found in contents of the large intestine and in the scrapings from the typical amœbic ulcers of the colon. Typhoid bacilli were obtained in cultures from the spleen and mesenteric glands, and cover-slip examinations of caseous contents of lung-cavities showed the presence of numerous tubercle bacilli.

Treatment.—W. J. Buchanan⁷ has treated with salines in his hospital 855

⁴Jour. Amer. Med. Assoc., Jan. 5, 1901.

⁵*Ibid.*

⁶Boston Med. and Surg. Jour., Feb. 21, 1901.

⁷Brit. Med. Jour., Apr. 13, 1901.

cases with 9 deaths, or a mortality of only a little over 1 per cent. The following mixture was used: \mathcal{R} Sodii sulphatis, 1 drachm; aquæ fœniculi, ad 1 ounce. This was given four, six, or eight times a day (each dose represented 1 drachm of the saline), as the case required. No dose was repeated on the following day till the stool had been inspected. The saline was continued till every trace of blood and mucus had disappeared completely in two or three days; in others they returned on the third or fourth day, necessitating a repetition of the saline.

The saline treatment is advocated for acute cases only. It is not considered a safe method for chronic or relapsing cases with ulceration of the colon. In cases in which either the symptoms or the history pointed to the disease being either chronic or relapsing, the saline was used for one or two doses during an exacerbation of the chronic state, and then the case was treated with soda and bismuth or with salol, with an occasional dose of castor-oil. For stools containing scybala nothing is so good as a dose of castor-oil guarded by 10 minims of laudanum.

When the patient can be admitted to hospital, the saline is the best method of treating acute dysentery, but it should not be applied in a routine fashion in out-patient practice, on account of the possibility of many patients having had previous attacks, and having their bowels in a state of unhealed ulceration. The success which has this year attended the treatment of the chronic cases is due to careful dieting on rice-water (mar) and boiled milk and tyre (dahi), the use of anthelmintics (a large proportion of the inhabitants of some parts of Bengal harbor both round and tape-worms), and the careful occasional use of the saline, with

Dover's powder and the intestinal antiseptics.

W. J. Cruikshank⁸ believes that we have in the sulphate of magnesium, when properly administered in acute dysentery, a remedy which approaches as nearly to a specific as does quinine in the treatment of true malarial infection, or mercury and iodide of potassium in syphilis. In all cases of acute dysentery, from the beginning of the attack until there is a subsidence of all the symptoms, it should be administered in drachm doses every three hours, dissolved in 1 or 2 ounces of distilled water, to which may be added 10 drops of the dilute sulphuric or aromatic sulphuric acid. At the end of forty-eight hours, in the vast majority of cases, the stools take on a biliary character. The treatment must now be continued steadily until the stools become nearly normal. When this result is obtained, the medicine may be gradually withdrawn; the average time required for the establishment of convalescence being from three to six days from the commencement of the attack. The disease occurring in children should also be treated in this manner, the dose of the sulphate of magnesium and sulphuric acid being governed by the age of the child.

S. M. Long⁹ thinks the treatment of dysentery requires a knowledge of the different types of the disease, thus showing the necessity of knowing how to use the microscope, and of an acquaintance with the different methods of discovering the bacteria causing the disease. The first thing is to put the patient at once into bed, giving him an ounce of sulphate of magnesium in half a glass of warm water before breakfast, repeating

⁸ N. Y. Med. Jour., Mar. 16, 1901.

⁹ *Ibid.*, Mar. 30, 1901.

it the same day if necessary. Ipecacuanha will often succeed if administered in the following manner: The patient is put to bed, and, while his stomach is empty, 15 to 20 drops of tincture of opium are administered; then, fifteen minutes later, an ice-bag is to be applied to his head, a mustard plaster to his stomach, and an hypodermic injection of morphine, $\frac{1}{4}$ grain, is to be given. Not less than 40 grains of ipecacuanha by the mouth should be administered, at the same time instructions being given to the patient or to the nurse that he is to remain quiet on his back for four hours without moving or taking anything by the mouth, and that, should the saliva increase in the mouth, it is not to be swallowed, but to be spit out. From 60 to 70 per cent. will be cured by one administration, from 10 to 20 per cent. will be cured by a second dose, and 20 per cent. will require some other kind of treatment.

Bismuth subnitrate should be given in very large doses, if good results are expected. Forty or 60 grains every three or four hours is a very moderate dose, and, if bismuth alone is not enough to check the trouble, then opium should be used also. A good way is to give 40 grains of bismuth subnitrate and 5 grains of Dover's powder, well mixed, every three or four hours, as the case may indicate. In some cases enemata is a life-saving treatment which should not be neglected. In a few cases the cold water may be the best; but the hot should be preferred. The medicines preferred to be used with the enemata are silver nitrate, 20 grains to the pint, or quinine for amœbic cases. But one should not forget to clean the bowels of the patient with a soap-suds enema before administering the medicated enema. A rubber bag or fountain-syringe with a

soft rectal rubber tube attached to it is all that is necessary for the operation.

At Pretoria, where for some weeks J. J. Day¹⁰ had charge of the majority of the dysenteric patients in No. 2 General Hospital under Lieutenant-Colonel Keogh, many of the cases were typical. The method of treatment adopted was as follows:—

On admission the patient was immediately given ol. ricini, 1 ounce; tr. opii, 15 to 25 minims; aq. menth. pip., 1 ounce; and a diet of arrowroot, 1 pint; milk, 3 pints; soda-water, 2 pints; brandy or port wine. As soon as the bowels had been thoroughly cleared, mag. sulph., 1 drachm; ac. sulph. dil., 15 minims; aq. menth. pip., 1 drachm, was given every hour until the stools became feculent.

The concentrated doses of sulphate of magnesia were more quickly efficacious than more dilute doses. As the tenesmus was relieved and the evacuation of blood and mucus ceased, the sulphate of magnesia was administered correspondingly less frequently, but was always continued for at least forty-eight hours after the dysenteric symptoms had ceased. In cases where the bowels were still relaxed a simple astringent mixture of catechu, tr. opii, and ac. sulph. dil. in all cases proved efficient. As the symptoms abated the diet was increased through eggs and chicken to ordinary rations, after four or five days of which a patient was transferred to the convalescent division.

GASTRIC ULCER.

Diet.—D. D. Stewart¹¹ says that at the outset the patient, or attendant, is to be made acquainted with the nature of the

¹⁰ Brit. Med. Jour., Jan. 26, 1901.

¹¹ Therap. Gaz., May 15, 1901.

ailment and cautiously advised of its direct and remote dangers. The patient is required to remain in bed for a period varying from ten days to five weeks, depending upon the duration of bowel-feeding, after which she may rest upon a lounge for part of the day, and later, as at the end of three weeks, be allowed to move about the bedroom, as improvement in the general condition continues. A competent attendant, preferably a skilled nurse, should be at hand. For a period, varying from a week to two or three, the patient is to be fed solely by the bowel. All food, even of the simplest sort, including milk, is to be prohibited by the mouth during this time. At first drink even is also to be withheld save that amount of fluid necessary in which to administer the remedies ordered. Thirst is preferably assuaged by swallowing morsels of ice or by the administration of water enemas at the time of the cleansing irrigations. The ingestion of water is especially to be withheld in those cases in which vomiting is a troublesome symptom.

The technique of bowel-feeding, including the forms of enemas personally used, is as follows: At the outset of treatment, unless the patient has been for at least five days on an exclusive soft diet, and unless severe or recurrent gastric hæmorrhage or obstinate vomiting contra-indicates, a laxative (preferably 2 grains of calomel) is given on the empty stomach, and light food, such as peptonized milk-gruel only, is to be permitted by the mouth until the bowels have freely acted and again become quiet. The action of the calomel may be hastened at the end of six hours by a large warm-water enema or by a small dose of salts. If the bowels have been very freely moved without the laxative, it is unessential. Contra-indication for the

employment of a purge existing,—hæmorrhage or vomiting,—a large warm-water cleansing enema may be used instead. If marked gastric irritability is present or hæmorrhages have lately occurred, no delay should be permitted before instituting bowel-feeding.

The feeding is to be given at intervals of approximately eight hours, as at 7 A.M., 3 and 11 P.M. The afternoon hour for feeding may commonly remain a fixed one; the morning or evening hour alone often requires some variations. Five to seven hours' retention of the enema is about all that may be expected. One hour before each feeding, or at least before the alternative feeding, the sigmoid flexure is to be irrigated with a pint or more of warm water, plain or with warm water containing a small teaspoonful of salt. This the patient is encouraged to void after a few minutes. Immediately after its injection, as thirst is usual, 8 ounces of normal salt solution is passed into the sigmoid flexure. This may be permanently retained or after fifteen minutes voided. Now, at the end of one-half to three-quarters of an hour rest of the bowel, the nutritive enema is introduced. The patient is placed on the left side with the knees flexed, the pelvis being elevated by aid of a pillow. The enema is administered either by a fountain-syringe or preferably a glass funnel connected through a stretch of rubber tubing about five feet in length. To the terminal end of the tubing is attached, by means of an interposed glass tube, a moderately firm rubber rectal tube. This tube should have a closed end and a large velvet-edged, lateral eye. After warming and oiling, it is carefully inserted as high into the bowel as possible; it should at least reach the promontory of the sacrum. If the tube can be gently passed

to the extent of twelve or even eighteen inches, it renders the operation much more likely to be successful.

A very successful enema consists of a heaping teaspoonful of somatose, or of one of the newer preparations of concentrated albumin, such as nutrose, plasmon, or the like, dissolved in as little water as possible. One large or two small eggs are now thoroughly whipped with this and then incorporated with either 4 ounces of peptonized milk-gruel or with 2 heaping tablespoonfuls of Mellin's food, which is first prepared in the usual manner. The Mellin food or the gruel should not be added to the whipped egg while too hot. Instead of the Mellin food or of the peptonized milk-gruel, 4 ounces of moderately thick unpeptonized gruel made with fine flour or barley, wheat, or oatmeal may be employed. This must be carefully prepared in order that no particles of adherent cooked gruel or uncooked flour exist. Even with care in preceding preparation, the gruel had better be run through a hair sieve after making. The whole enema, when of this composition, should not exceed 8 ounces, and preferably should be of less amount. After preparing the enema 5 grains of an active preparation of papain is added, dissolved in the gruel or in the Mellin food. If unpeptonized gruel is employed, 4 grains of taka-dias-tase, or an equal amount of the solution of taka-dias-tase, is added as well. To the enema, in place of the somatose, or in addition to the latter, 1 to 2 teaspoonfuls of Mosquera's beef-jelly may also be added. If the beef-jelly is used, it is well to see that it is first thoroughly incorporated in the gruel while the latter is still hot. Mosquera's jelly should not be used in the feeding of the first two or three days, in order to determine as to the agreement of the simpler enema.

A small amount of sodium chloride, approximately 1 per cent., aids in the absorption of the emulsified egg. The egg contains a little sodium chloride, and the addition of too great a quantity will not only retard absorption, but will irritate the mucous membrane of the bowel. To this enema, when bowel-feeding is continued for a longer period than a week, iron is added in every case, Drees's solution of the albuminate being excellent. One drachm is added to each enema for the first two days, 2 drachms for the second two days, 3 drachms for the fifth and sixth days, and a tablespoonful thereafter. A favorite feeding enema is a pint of peptonized milk-gruel containing somatose and Mosquera's fluid beef-jelly (of each, 2 drachms), or, with but one of these, a single well-beaten egg.

The enema must be introduced at a temperature slightly above that of the body. If the anal orifice is unduly sensitive, a hollow cacao-butter suppository containing a small quantity of iodoform (2 grains) will generally subdue this, inserted ten to fifteen minutes before the tube is used. If considerable irritability exists, it is well to employ a suppository containing cocaine muriate, $\frac{1}{4}$ to $\frac{1}{8}$ grain; extract of hyoscyamus, $\frac{1}{2}$ grain; iodoform, 2 grains; inserted fifteen to thirty minutes before the feeding. In some cases excessive irritability may necessitate the addition of a small quantity of opium, or 15 to 30 drops of deodorized tincture of opium in an ounce of water may be introduced instead.

Mouth-feeding subsequent to rectal alimentation must be begun very cautiously, and preferably not for a week after vomiting and localized pain have disappeared. The food must be for some days such as would be administered had bowel-feeding not been practiced. Both theoretical and practical evidence is quite

against the utility claimed for a milk diet in gastric ulcer. If milk is used at all it should be first pancreatinized. Far preferable to peptonized milk is peptonized (pancreatinized) milk-gruel, prepared after Sir William Roberts's process. The formula for pancreatinizing milk and preparing the milk-gruel is given in the slip accompanying the tubes of pancreatin and soda as sold in the shops. Concerning the preparation of peptonized milk-gruel, it is preferable to strain after its digestion, and not on mixing, as is generally advised.

A diet of peptonized milk-gruel is personally employed in all cases of ulcer in the early part of the treatment, when feeding by the bowel is not practiced, and it is always used as the first food for a number of days on the cessation of bowel-feeding, antacids being given systematically when there is hyperchlorhydria. But small quantities of the gruel must be allowed at first, on reinitiating mouth-feeding, even when pain and nausea or vomiting have been absent for some days. It is well to start with a tablespoonful of peptonized milk-gruel every half-hour, until three to six tablespoonfuls are taken. These agreeing, 1 ounce is given every hour until three or four feedings have passed. Then 2 ounces are administered every two hours for some two or three feedings, and then 3 ounces every two hours, increased on the third day to 4 ounces at from two- to three-hour intervals, and then gradually increasing to 5, 6, or more ounces. With this somatose is often combined. For the first two or three times a half of a small teaspoonful of somatose is administered. This amount is gradually increased until on the third or fourth day after starting somatose a heaping teaspoonful is taken every alternate feeding. The bowel-feeding is not discon-

tinued abruptly on starting with feeding by the mouth. At first the midday feeding is omitted; in two or three days either the morning or evening feeding, and, finally, in a day or two more, the stomach continuing tolerant, bowel-feeding is stopped.

In place of somatose one may employ the valuable and less expensive casein-albumin compounds, such as plasmon and nutrose. A somewhat similar concentrated albumin compound is tropon.

Soon Drees's solution of the albuminate of iron may be given in a small dose with each mouth-feeding. At first the dose is 20 drops, increasing by 5 to 10 drops until a large teaspoonful is reached. This, at the termination of a week, is increased to 2 teaspoonfuls four times daily, and this later on gradually to a tablespoonful.

At the end of approximately two weeks after discontinuance of bowel-feeding, or in three to five weeks, when this has not been practiced, unsalted broth of mutton and chicken, thickened with farina, or very thoroughly cooked barley or rice, should be given. Alternately with this the white of a beaten egg is added; somatose, plasmon, or nutrose is continued as before. Somewhat later gelatin and purées, the latter made at first with but little cream, are allowed, as is either the pulp of scraped lightly broiled tenderloin steak, or the same raw; the last then formed into cakes and quickly cooked on a very hot griddle. These may be flavored with a small pinch of salt. The white of a coddled egg may also now be taken, seasoned with a pinch of salt and the addition of a little butter. This agreeing, on another day 2 whites may be so taken; and, finally, gastric symptoms being practically absent, and some time having elapsed since treatment was

begun, the yolk of the egg may also be eaten. A well-beaten egg with milk may now be occasionally given, should improvement be continuous. On the slightest appearance of renewed symptoms feeding must again be, for a time, of the simplest kind, and of the smallest amount; and, if necessary, all food by the mouth should again be temporarily withdrawn and bowel-feeding re-employed.

Unpancreatinized gruels (not salted in cooking) made with the finely ground meal,—such as wheat, barley, or oats,—to which milk is added after cooking, may be tried in small quantity to replace the peptonized milk-gruel after the latter has been taken for a week or ten days in a case previously on bowel-feeding; and progressing well with these, a small quantity of an active diastase had better be administered. One to 2 grains is sufficient for 3 to 4 ounces of moderately thick gruel.

Treatment.—F. C. Shattuck¹² long ago adopted the arbitrary period of two weeks as a reasonable time to allow for the healing process and a fair average limit of toleration of exclusive rectal feeding. This period has been prolonged in two cases to five weeks, and has been shortened in others to meet the seeming demands of the special case. In a few cases rectal feeding has clearly provoked stomach unrest and vomiting. In some others the period of stomach-abstinence has been shortened on account of the refusal of the bowel to retain or absorb in spite of varied coaxings. If discomfort persists or hunger is importunate, small doses— $\frac{1}{32}$ to $\frac{1}{16}$ grain—of morphine may be given once or more during the day.

Ordinarily a large cleansing enema is given daily and nutrient enemata every six hours. In some cases as much as a

pint of nourishment can be introduced and absorbed every six hours. For thirst sometimes small quantities of water are allowed by the mouth. In other cases water may be introduced into the rectum or under the skin.

One important suggestion appears to result from the analysis of personal cases. Of 85 cases, reports to date were obtained in 52. Of 63 cases treated by rectal feeding, the end result is known in 37. Of these 37, 18 were fed exclusively by the rectum less than ten days, and in 7 there has been a recurrence of severe symptoms. Of the 19 cases fed exclusively by the rectum for more than ten days, there has been recurrence in only 1. As far as present figures go, they are strongly in favor of prolonged stomach-rest.

A. W. Mayo Robson¹³ thinks that of the 25 per cent. of ulcer of the stomach which fail to respond to medical treatment in from four to five weeks almost everyone should undergo operation. Prolonged preparations directed toward the sterilization of the gastric mucous membrane are quite unnecessary. It is pre-disposed to be aseptic; aseptic food-stuffs and occasional lavage two days prior to operation suffice. Gastro-enterostomy will doubtless be the operation of choice for many years; because of its low mortality. It secures drainage and rest; it relieves hypochlorhydria; it is curative. The posterior operation, which can easily be done in a quarter of an hour by the use of his bone bobbins, is preferred. Pyloroplasty, in the absence of adhesions and in the presence of a properly placed ulcer, deserves great consideration.

¹² Jour. Amer. Med. Assoc., Apr. 13, 1901.

¹³ Med. News, May 18, 1901.

R. C. B. Maunsell¹⁴ states, with regard to the operation, the primary incision is best made in the ordinary way midway between the umbilicus and ensiform cartilage. This should be enlarged in any direction in which more room is required by cutting with strong scissors. The perforation in over 80 per cent. of the cases will communicate with the greater sac of peritoneum, and can be readily found. If the anterior surface shows no perforation, then the posterior surface can be exposed by tearing through the gastro-colic omentum, thus opening the lesser sac.

The next thing is to open the stomach through the perforation by means of a catheter, and then sew up the opening. Some advise excision of the ulcer, but most operators prefer simple suture. The form of suture used in personal cases is a through-and-through interrupted silk stitch, covered in by a continuous silk stitch, usually called Dupuytren's, and over all an omental graft, which adds very little to the time of operation.

The most important part of the operation is the cleansing of the peritoneal cavity. In every localized peritonitis sponging with gauze pads is the best; but, where the coiling and peritonitis are general, the right course is to douche, then to carefully wipe out the pelvis, superior surface of the liver, and inferior surface of the diaphragm with large gauze pads held in the hand, and then again a final douching. The best way to do the first douching is to hold up the edges of the wound and pour in saline solution from a jug, gently manipulating the intestines, etc., until all gross material ceases to come away.

For the final and more methodical douching the best plan is to take the end of a wide rubber douche-tube in the hand, without any nozzle, and, passing

the hand and forearm through the wound, carry it into the pelvis and douche upward, and then carry it above the liver on both sides, finally removing as much as possible of the fluid.

Abdominal drainage is futile except in cases in which there is a distinct abscess-cavity walled off by adhesions.

There is one very practical point worth noting in the closure of the abdomen, and that is to use through-and-through fishing-gut sutures, as they exert no capillary action between the non-aseptic peritoneal cavity and the wound.

NEURITIS.

Etiology.—Stuart Hart¹⁵ has had a case of multiple neuritis and hæmatoporphyrinuria following the prolonged ingestion of trional. The cases of trional poisoning are interesting in that they bring vividly before us the etiological relationship existing between the ingestion of another of the synthesized organic drugs and the development of nervous affections. It is a well-recognized fact that the occurrence of neuritis has notably increased since the introduction and general use of the coal-tar products as remedies.

In personal case the whole amount of trional ingested was about thirty doses of 15 grains each: a total of 450 grains for two months. The onset presented the picture of a case of acute gastro-intestinal poisoning. Following this there was an acute degeneration of the kidneys and the presence in the urine of hæmatoporphyrin: a substance which is usually associated with poisoning of sulphonal and trional. The first of the nervous manifestations was a neuritis of the vagus and a subsequent trophic dis-

¹⁴ Brit. Med. Jour., Mar. 23, 1901.

¹⁵ Amer. Jour. Med. Sciences, Apr., 1901.

turbance in the heart-muscle resulting in dilatation and valvular insufficiency.

The more marked affection of certain definite groups of muscles—*e.g.*, the extensors of the wrists and feet—suggests the selective action of trional for certain nerves or groups of cells in the anterior horns of the cord, not unlike that of the metallic poisons.

The nerves recovered their function in the same order in which they were impaired, *viz.*: first the vagus, next those of the extremities of the left side of the body, and last those of the right side.

Diagnosis.—D. J. McCarthy¹⁶ notes a case in which the double etiology of alcohol and lead was diagnosed in the production of multiple neuritis for the following reasons: In the first place, the presence of the blue line on the gums and the history of an attack of lead colic was sufficient evidence of the presence of lead in the system in sufficient quantity to produce changes in the nervous system. In the second place the predominance of extensor involvement as exhibited in the bilateral wrist-drop, with a fair preservation of the grip, and all forms of sensation, followed the usual clinical picture of lead palsy of the upper extremities. The evidence in favor of the presence of the alcohol as a factor in the production of the neuritis was found in the predominance of the changes in the peripheral, intramuscular nerve-filaments in the lower extremities over the trunk changes. The muscles were very sensitive to pressure even after the acute symptoms had subsided, while the nerve-trunks were only moderately sensitive, and only deep pressure elicited pain.

Sensitive and painful muscles are as rare in cases of lead neuritis as they are common in alcoholic neuritis. Wrist-drop, on the other hand, is so frequent

in lead neuritis that it is looked on as the typical clinical picture of that disease. An intense atrophy coming on rapidly after the development of the neuritis, less than four weeks, is rare in either form of neuritis, and is practically never met with in lead. One must look on it as an evidence of an intense change taking place either in the peripheral nerves or the anterior horn cells of the spinal cord, or both, induced by the double intoxication.

T. Lauder Brunton¹⁷ has never come across a description of the following signs in alcoholic neuritis:—

The loss of knee-jerk and extreme hyperæsthesia of the skin in advanced cases are known to everyone, but before these occur, and while the knee-jerk may be only sluggish or may even be unaltered, a peculiar expression of the face is sometimes noticeable. The face becomes mask-like and expressionless; the lips appear to move, apart from the cheeks; but, what is sometimes still more extraordinary, the lips themselves may seem very mobile. The eyebrows and eyes may move in accordance with the lips, but a fixed and expressionless band stretches across the nose and cheeks between the eyes and lips, the skin upon the cheeks remaining motionless and unwrinkled, while the lips, eyebrows, and forehead may be moving freely.

Another point is the condition of the pupil-reflex, which is just the converse of the Argyll-Robertson phenomenon. In a number of cases of alcoholic neuritis he has noticed that the reflex of the pupil to light is rapid and extensive, whereas the contraction of the pupil on accommodation to a near object is slight and sluggish or entirely wanting. In-

¹⁶ Phila. Med. Jour., Mar. 23, 1901.

¹⁷ Brit. Med. Jour., Dec. 1, 1900.

deed, in one or two cases a dilatation instead of contraction on accommodation has been obtained.

Treatment.—J. S. Bury¹⁸ says the first essential in dealing with a case of peripheral neuritis is to find out the cause and to remove it, or to stop its action as soon as possible. The cause is nearly always some poison.

There appears to be a curious difference in the relationships of doctors and patients in respect to alcohol and to other poisons. If a doctor finds that his patient is taking lead, arsenic, or mercury in poisonous doses, he tells him so, and urges him to discontinue his dangerous practice. But if alcohol in large quantities is being taken, the doctor requires more courage to tackle his patient, for he runs the risk of offending and possibly of losing his client.

Having removed the patient from the influence of the poison, the next thing is to place him under the most favorable conditions for recovery. In all except the slightest cases rest in bed is advisable.

In the acute stage the suffering of patients with arsenical neuritis is often extreme; and it is of the utmost importance to relieve this as promptly and effectively as possible. The severest cases require a water-bed.

In feeding the patient or in attending to his evacuations the nurse should exercise the greatest care and gentleness, so that all unnecessary movements on the part of the patient may be avoided.

On no account must she attempt to massage the limbs.

For the relief of tender nerves and muscles there is nothing better than warm fomentations. It is best to apply them intermittently; a warm fomentation may be put on the painful part for half an hour, and the application re-

peated every four hours, a layer of hot cotton-wool taking its place in the intervals. Occasional vapor-baths may afford the patient great comfort, but they should not be used when the action of the heart is much impaired.

In the early stages of neuritis salicylate of soda and potassium iodide, either alone or in combination, appear to be of service. Neuralgic pains may be relieved by the administration of antipyrin, phenacetin, or exalgin; but when the suffering is very great the hypodermic injection of morphine becomes necessary. In the acute stage strychnine must not be given.

Of far greater importance than drugs is the regular and careful administration of nourishment, in the forms of boiled milk, beef-tea, beef-extracts, soups, and broths. Benger's food or peptonized gruel may be required, and when vomiting is a prominent symptom nutrient enemata should be administered.

When the acute symptoms have subsided, but not before, recourse may be had to massage, electricity, and tonic treatment. Massage may be employed as soon as extreme pain and tenderness have disappeared. At first massage should be employed in the gentlest manner and only for short periods of time; but as soon as the patient stands it well it ought to be regularly and vigorously applied. The patient should also be encouraged to make voluntary movements against resistance; and other modes of Swedish exercises can be employed with advantage. Inco-ordination of movement is best treated by Fraenkel's method.

In applying electricity the constant current is the most useful. Large electrodes are desirable. As soon as the muscles respond to a weak faradic current

¹⁸ Brit. Med. Jour., Dec. 8, 1900.

this form of electricity may also be employed with advantage. A daily warm bath, followed by vigorous friction to the skin, is of value, while tonics and cod-liver-oil often prove of great service. Of all drugs that may be regarded as tending to the restitution of the paralyzed parts, strychnine is unquestionably the most valuable, and it is better to administer it hypodermically than by the mouth. It is advisable to begin with $\frac{1}{50}$ grain, and then gradually increase the quantity.

PERITONITIS.

Diagnosis.—James Tyson¹⁹ believes that the main point in perforative peritonitis in typhoid is the difficulty of diagnosis. He notes a case in which there had been sudden abdominal pain, great tympany, and other evidences of perforation, which had subsided within a short period, and he believes there had not been a perforation. He observed, in one instance, pain referred to the end of the penis.

Prognosis.—Osler²⁰ cannot recall one instance in his experience in which there has been a recovery from typhoid when a perforation existed. The first fifteen or twenty hours is the most important to the patient.

Ed. Loison²¹ has collected 90 cases of perforation by a typhoid ulcer surgically treated, in which there were 16 recoveries: 21.6 per cent. Perforation generally occurs in the second, third, or fourth week of the disease, and cases operated within twenty-four hours after the occurrence of perforation generally recover. The general condition of the patient may not warrant operation: the site of the perforation may not be found, or multiple perforations may exist.

Treatment.—B. T. Tilton²² thinks

general septic peritonitis offers a peculiarly favorable field in hospital practice for improving the mortality statistics. The older methods of treatment by opium and rest of the affected parts yielded a mortality of 95 per cent. or more, whereas the more recent methods have reduced it to 80 per cent., and in some instances as low as 60 per cent. No great improvement is looked for in the present surgical technique; progress in this department of surgery must rest chiefly upon the co-operation of the medical profession in bringing these desperate cases earlier to the attention of the surgeon.

G. G. Davis²³ states that there may be difficulty in finding a perforation during an operation for perforative peritonitis. In one instance he operated on a patient with typhoid fever under the impression that there was a perforation, but none could be found. In this instance the patient made an uneventful recovery and stood the operation well. Simple flushing out of the abdominal cavity seems to do good.

I. Burney Yeo²⁴ says how great an improvement has taken place in the treatment of cases of tuberculous peritonitis may be judged from the fact that statistics show that now over 50 per cent. of these cases recover. In the acute cases he has had excellent results from the rubbing in of iodoform ointment in the abdominal surface.

There is this distinction between medical and surgical treatment, viz.: that *medical* treatment cannot be begun too

¹⁹ Jour. Amer. Med. Assoc., Feb. 16, 1901.

²⁰ *Ibid.*

²¹ Revue de Chirurgie, Feb., 1901.

²² Med. Record, Dec. 15, 1900.

²³ Jour. Amer. Med. Assoc., Feb. 16, 1901.

²⁴ Lancet, Mar. 16, 1901.

early, whereas *surgical* treatment may be. Prof. Watson Cheyne points out that it is an error to operate too soon, for if operation is done too early the disease is apt to return. He recommends that medical treatment should be given a reasonable time, which he estimates as from four to six weeks in the acute cases and from four to six months in the chronic ones. The operation he recommends is a very simple one: In cases with effusion without adhesions the abdomen should be opened in the middle line below the umbilicus and the fluid allowed to run out, aided by turning the patient on his side and "perhaps removing some of it by means of sponges," then stitching up the wound again. He does not recommend washing out the peritoneal cavity unless the effusion is purulent; in that case he advises the use of salt solution for this purpose, and then introducing a little iodoform-and-glycerin emulsion into the cavity before closing it. He also urges that medical measures should be superadded to the surgical ones as soon as possible. Ebstain also supports Prof. Watson Cheyne's opinion that "simple opening of the peritoneum" is best "without antiseptics and without washing out or drainage."

As to the cases in which operation should be performed, authorities differ. Prof. Watson Cheyne says: "All, even the gravest forms, show some good results, and there is *no* form in which we can say that laparotomy is absolutely useless." He states that he has "had success in the dry form as well as in the ascitic." He considers that the most favorable cases are those with *localized* ascites, and the next those with *diffused* ascites. Then comes the fibro-adhesive form: when moderate in extent and no ascites. In cases where the abdomen contains large cascating masses successes

are not frequent, and he maintains that they do sometimes occur. He does not consider the co-existence of early phthisis a counter-indication, but with advanced phthisis the results are not good. He is doubtful if laparotomy does any good in cases with intestinal ulceration.

Irving S. Haynes²⁵ remarks that in general septic peritonitis, while death is sure to occur without operative intervention, it is not so certain that operative intervention will be followed by a fatal issue. In all doubtful cases the incision should be made through the linea alba. The character of the fluid which gushes out will give a clue to the locality of the trouble. The abdominal cavity should be at once thoroughly irrigated, by means of a large glass tube perforated laterally, with a very large quantity of decinormal salt solution. This irrigation should be kept up until the fluid returns clear, and should be done without sponging before a search is made for the lesion. The handling and chilling of the intestine should be most carefully avoided. When there is great distension of the bowel, interfering with the necessary manipulations, the gas should be allowed to escape through a small linear incision, which should afterward be closed by suture. Full-strength peroxide-of-hydrogen solution can be used locally, if followed by a washing with salt solution, but its use is not advised throughout the peritoneal cavity, as it certainly possesses the power of injuring the epithelium. The best form of drain is the "wick drain," made by wrapping strips of gauze in gutta-percha tissue. The dressings should be frequently renewed to favor capillary drainage. One should be careful about over-

²⁵ Med. Record, Dec. 15, 1900.

stimulation of the heart by hypodermic injections of caffeine, strychnine, sparteine, and similar drugs, but there is not much likelihood of overstimulation from all the whisky that could be given with an hypodermic syringe.

A. Brothers²⁶ has been in the habit of flushing the peritoneal cavity frequently; now he does it only in cases in which a very large quantity of pus is already distributed throughout the peritoneal cavity, for in ordinary cases of general septic peritonitis such flushing seems to do more harm than good by disseminating the septic matter into the remotest parts of the peritoneal cavity.

SCARLET FEVER.

Diagnosis. — Clement Dukes²⁷ says it was not until the close of the seventeenth century that, mainly through the researches of Sydenham, scarlet fever ceased to be confounded with measles, and now, at the close of the nineteenth century, rose-rash is still confused with measles and with scarlet fever. Finally, on the verge of the twentieth century, it is being discovered that a "fourth disease," perfectly distinct from measles, rose-rash, and scarlet fever, is to be distinguished. But whatever name for this disease should be ultimately adopted, it should obviously preclude any possible confusion with scarlet fever or rose-rash.

The question has occurred whether the "fourth disease" which so closely resembles scarlet fever would tend in a series of cases gradually to develop into true scarlet fever. But the slightest indication in this direction has never been observed. There is a well-expressed line of demarkation between the two diseases, and notwithstanding their close superficial resemblance every case is either the true "fourth disease" or true scarlet fever.

A brief résumé of 19 cases of a series of this "fourth disease" is as follows: There were practically no premonitory symptoms and no boy admitted illness until the rash appeared, but on inquiry admission of general malaise was elicited.

In one case free vomiting occurred in the night and a very full rash was discovered in the morning. This vomiting arose, however, from his having eaten freely of sweets in the evening. The maximum temperature throughout his illness was only 99.6° F.

The first symptom to attract the attention of the sufferer was the rash, which in nearly every case was very full and quite characteristic of scarlet fever. The fauces were red and swollen, but occasioned so little discomfort that complaint was rarely made, and the condition was only discovered on inquiry or inspection.

In some cases the skin became merely rough; in most instances there was free desquamation of small scales; while in others the peeling was equal to the worst ever noticed in scarlet fever. In this "fourth disease" the desquamation bears no relation to the intensity of the eruption; several of these cases with the fullest and intensest eruption were followed by very scanty desquamation. The peeling may continue as long as in scarlet fever, although it is apparently innocuous. The tongue was furred throughout, which cleaned, as all furred tongues do. In no case did the tongue peel on the fourth day, as is so pathognomonic of scarlet fever in both mild and severe attacks.

The lymphatic glands universally were enlarged, hard, and tender, sometimes excessively tender. The average tem-

²⁶ Med. Record, Dec. 15, 1900.

²⁷ Lancet, July 14, 1900.

perature was 101° F., but it ranged from 99.4 degrees to 104.2 degrees. The temperature almost invariably became normal on the third or fourth day. In only one case did the pulse reach 100: a signal contrast to the accelerated pulse of scarlet fever.

In no instance did albuminuria arise, although all the sufferers except two were fed freely as soon as the slight fever (which occurred from the third to the fifth day) had disappeared, and the boys were removed from bed as soon as the rash had subsided.

It was impossible to ascertain the incubation period in this series of cases, since several of them occurred simultaneously. It is believed the incubation varies from 9 days to 21 days. The duration of infectiveness lasts from 10 days to 14 days or even 21 days, where efficient disinfection is in operation. The continuation of desquamation is apparently of no moment as a cause of infection or sequelæ.

Previous scarlet fever had not occurred in any instance.

Eight boys had already suffered from rose-rash out of this series of 19 cases, or 42.1 per cent.

A case of stomatitis with septic rash simulating scarlet fever is noted by H. W. Bernard.²⁸ On the morning of April 14th a sergeant-major of the field artillery was reported sick. He had always enjoyed good health until the week previous. He complained of headache, sore throat, and prostration: his face was flushed, his pulse quick, and his temperature 102 degrees: the tongue was large, doughy, and coated, with a few enlarged papillæ at the tip; the fauces were of a purplish color; the tonsils were enlarged and œdematous, with tenderness on pressure under the angles of the jaw; the skin was moist and perspiring; and

the neck, trunk, and limbs were profusely covered with a bright-red rash of punctiform appearance, closely resembling scarlet fever.

The patient said that he had been ailing since the morning of April 7th, when he had cut his lower lip in two places while shaving: that the wounds remained sore; and that during the entire week he had spent his time sitting over the fire shivering, the rash appearing on the eighth day. The following evening his temperature was 103 degrees, and the next morning he complained of his teeth and gums feeling sore. On examination the gums were found greatly swollen, of a deep-purple color, slightly detached from the teeth, and when pressed upon a large quantity of pus appeared around each tooth. On the appearance of this condition of pyorrhœa alveolaris, the rash disappeared.

The case was very puzzling, especially as scarlet fever was prevalent in the barrack at the time. No desquamation followed, and, owing to the patient being ill for nearly a week before the rash appeared, the case was not returned as scarlet fever.

Prophylaxis. — William Robertson²⁹ thinks that, in order to escape diffusing infection, a better system of building houses for the artisan population at least is to be advocated. The speculator buys a piece of ground and plants thereon a high pile of buildings, the houses of which soon become a bee-hive of children. There is no method followed to establish a hollow square of blocks, nor is there any symmetry in the arrangement of streets so as to provide good air-currents.

There should be a methodical exami-

²⁸ Brit. Med. Jour., May 18, 1901.

²⁹ *Ibid.*, Apr. 6, 1901.

nation of all scholars by medical men appointed by the school boards for the several districts of every large centre of population. Every town should, in fact, possess its School Board of Health, controlled by the medical officer of health.

Treatment. — Avnagnet³⁰ states that there are no prophylactic drugs to ward off nephritis. An absolute milk diet should be given for ten or twelve days. During the eruptive period the child should be bathed in tepid water; and after desquamation has begun inunctions of antiseptics are indicated. The ichthyolized vaselin, as recommended by Seibert, of New York, is excellent.

Boricated or resorcinated vaselin should be applied to the anterior nasal chambers, while injecting mentholized oil into the nasal passages is of importance. The throat should be kept clean by copious lavage with boiled water, rendered antiseptic by boric acid, resorcin, etc. After the lavage the throat should be brushed by stronger applications of the same antiseptics.

Calomel and salol are of value to disinfect the gastro-enteric canal.

For the hyperthermic scarlet fever cold baths or packs should be used. They are also of value in the ataxic form, although warm baths may sometimes answer better.

For adynamia saline solution, ether, or camphor should be injected.

According to J. G. Cecil,³¹ one should give the strictest injunctions as to exposures for two or three months after the attack of scarlet fever. The clothing of the patient should receive especial attention; woolen underwear is preferable, and the feet should be well protected. By controlling the excess of fever, by the use of diuretics and diluent drinks, by the use of mild purgatives, preferably the salines, by the use of disinfecting

sprays, gargles, and applications to the ulcerated tonsils, pharynx, and nasal cavity, one can modify the course of the disease to a limited extent, and undoubtedly prevent the absorption of noxious agents which are the source of mixed infection, and which play such an important rôle in the development of kidney trouble.

Cervical adenitis and middle-ear disease can, in a measure at least, be prevented and their extension and course modified by zealous care and attention to the throat and nose. A cleansing spray in the throat and nose of Dobell's solution or any other simple disinfecting solution will do much to prevent the accumulation and absorption of septic material from that source. The application by mop to the ulcerated surfaces of Loeffler's solution or hydrogen peroxide diluted with water and carrying a small percentage of bichloride of mercury will be of great benefit.

When the cervical glands become tender and swollen, hot fomentations, poultices, the mercurial or iodide-of-potash ointment will generally cause their dissipation. If suppuration takes place, then the gland must be opened as soon as pus present can be diagnosed.

When the middle ear suppurates, the drum-membrane should be punctured under cocaine as soon as this fact is determined. The auditory canal must be kept free and open, free drainage encouraged and maintained. The assistance of a specialist is very important and necessary in situations of this kind.

The eyes should be protected from strong light; reading or any close application of sight must be prohibited dur-

³⁰ Le Bull. Méd., Mar. 23, 1901.

³¹ Amer. Pract. and News, Jan. 15, 1901.

ing height of fever and for some weeks after.

Scarlatinal arthritis or scarlatinal rheumatism is likely to be monarticular, and shows a decided tendency to supuration. In the event of its occurrence the treatment is identical with similar conditions of other origin. The joint should be freely opened and drained.

Heart weakness and failure may be forestalled by the administration of strychnine, iron, and quinine, and whisky in all serious cases when any tendency of this nature is manifested.

YELLOW FEVER.

Etiology.—The following is the abstract of interim report on yellow fever by the yellow-fever commission of the Liverpool School of Tropical Medicine, by H. E. Durham and the late Walter Myers³²:—

1. Sufficient search reveals the presence of a fine, small bacillus in the organs of all fatal cases of yellow fever. We have found it in each of the fourteen cadavers examined for the purpose. In diameter the bacillus somewhat recalls that of the influenza bacillus; as seen in the tissues, it is about 4 microns in length.

2. This bacillus has been found in the kidney, in spleen, in mesenteric, portal, and axillary lymphatic glands taken from yellow-fever cadavers directly after death. In the contents of the lower intestine apparently the same bacillus is found often in extraordinary preponderance over other micro-organisms. Preparations of the pieces of "mucous," which are usually, if not always, present in yellow-fever stools, at times may present almost the appearance of "pure culture."

3. Preparations of the organs usually fail to show the presence of any other

bacteria, whose absence is confirmed by the usual sterility of cultivation experiments.

4. It is probable that this same bacillus has been met with, but not recognized, by three other observers. Dr. Sternberg ("Report on Etiology and Prevention of Yellow Fever," 1890) has mentioned it, and he has also recorded the finding of similar organisms in material derived from Drs. Domingos Feire and Carmona y Valle; but he did not recognize its presence frequently, probably on account of the employment of insufficiently stringent staining technique.

5. It is probable that recognition has not been previously accorded to this bacillus by reason of the difficulty with which it takes up stains (especially methylene-blue), and by reason of the difficulty of establishing growths on artificial media.

6. The most successful staining reagent is carbolio-fuchsin solution (Ziehl), diluted with 5-per-cent. phenol solution (to prevent accidental contamination during the long staining period); immersion for several hours, followed by differentiation in weak acetic acid. Two-hours staining period may fail to reveal bacilli, which appear after twelve to eighteen hours. The bacilli in the stools are often of greater length than those in the tissues, and they may stain rather more easily; naturally the same is true of cultures. Some of our specimens have already faded.

7. Since the bacilli are small and comparatively few in numbers, they are difficult to find. To facilitate matters at our last two autopsies (fourteenth and fifteenth) a method of sedimentation has

³² Johns Hopkins Hosp. Bull., Feb., 1901.

been adopted. A considerable quantity of organ-juice is emulsified with antiseptic solutions, minute precautions against contamination and for control being taken; the emulsion is shaken from time to time and allowed to settle. The method is successful, and may form a ready means of preserving bacteria-containing material for future study. The best fluid for the purpose has yet to be worked out; hitherto normal saline with about $\frac{1}{5}$ -per-cent. sublimate has been employed.

8. Pure growths of these bacilli are not obtained in ordinary aerobic and anaërobic culture-tubes.

9. Some pure cultures have been obtained by placing whole mesenteric glands (cut out by means of the thermocautery) into broth under strict hydrogen atmosphere. Investigation into the necessary constitution of culture-media for successful cultivation is in progress.

10. Much search was made for parasites of the nature of *protozoa*. We conclude that yellow fever is not due to this class of parasite. Our examinations were made on very fresh organ-juices, blood, etc., taken at various stages of the disease, with and without centrifugalization, and on specimens fixed and stained in appropriate ways. We may add that we have sometimes examined the organs in the fresh state under the microscope within half an hour after death.

11. The endeavor to prove a man-to-man transference of yellow fever by means of a particular kind of gnat by the recent American commission is hardly intelligible for a bacillary disease. Moreover, it does not seem to be borne out by their experiments nor does it appear to satisfy certain epidemiological conditions. It is proposed to deal more fully with the epidemiology and epidemiology of the disease on a later occasion.

12. We think that the evidence in favor of the etiological importance of the fine small bacillus is stronger than any that has yet been adduced for any other pretended "yellow-fever germ." At the same time there is much further work to be done ere its final establishment can be claimed. The acquisition of a new bacterial intestinal inhabitant would explain the immunity of the "acclimatized."

Charles Finlay²³ states that if it be admitted that, after the third day of an attack of yellow fever, mosquitoes can no longer be contaminated from the patient, the inference must be that after that period it is quite superfluous to keep mosquitoes away from the patient, and if it were true that the contaminated mosquito can never transmit the infection until twelve or more days have elapsed since its initial contamination, non-immunes might visit with impunity, during their illness, the first cases that occur in a locality previously free from infected mosquitoes. Positive evidence, however, may be given to show that, in the summer season at least, these rules do not always hold true. A fresh mosquito was applied on August 13, 1883, to a hæmogastric case of yellow fever whose attack had set in on the 8th; two days later, on the 15th, the same insect was applied to a second case of hæmogastric yellow fever attacked on the 10th; finally, on the 17th, the insect was applied to a non-immune whose isolation from other sources of infection had been perfectly satisfactory; nine days later, on the 26th, this person was taken sick with a mild, but well-characterized, attack of yellow fever, and subsequently resided over ten years in Havana

²³ Jour. Amer. Med. Assoc., Apr. 13, 1901.

without ever experiencing any illness which could possibly be referred to the yellow-fever infection. This case, as well as a few others among 104 inoculated subjects, merely show that the rules set down by Drs. Reed, Carroll, and Agramonte are not so absolute as they have imagined. With this reservation, there is no hesitation in admitting that the general principle which they have discovered and which, in their hands, has given such brilliant results, is the right one to work upon, especially when it is desired to contaminate the insect with only one bite upon a mild case and within the first days of the attack.

The report of the Committee on the Etiology of Yellow Fever read by H. B. Horlbeck³⁴ closed with the following conclusions from an article by Proust and Wurtz, published September 7, 1900: 1. The bacillus *icteroides* of Sanarelli seems to be the specific agent of yellow fever. That micro-organism injected into certain animals, especially dogs, reproduces symptoms and lesions strikingly analogous to those observed in man. The toxin of this bacillus produces in animals the same effect as the microbe. The injection of this toxin into five individuals reproduced in man typical yellow fever, accompanied by its symptoms and anatomical lesions. The serum of individuals attacked with yellow fever agglutinates cultures of the bacillus *icteroides*. 2. The bacillus has a prolonged vitality both in air and water (fresh and sea). It is certain that it is the same in the soil. Molds favor its development. These facts confirm conditions that have been known a long time. They explain the reawakening of yellow fever a long time after the extinction of an epidemic, and the longevity of the disease aboard vessels in bad hygienic conditions. No new prophylactic meas-

ures have come out in this knowledge of the etiology of the disease.

From the first part of the study of yellow fever by Walter Reed, J. Carroll, A. Agramonte, and W. Lazear,³⁵ the following conclusions are drawn:—

1. The blood taken during life from the general venous circulation, on various days of the disease, in 18 cases of yellow fever, successively studied, has given negative results as regards the presence of *b. icteroides*.

2. Cultures taken from the blood and organs of 11 yellow-fever cadavers have also proved negative as regards the presence of this bacillus.

3. *Bacillus icteroides* (Sanarelli) stands in no causative relation to yellow fever, but, when present, should be considered as a secondary invader in this disease.

From the second part of the study of yellow fever, the following conclusions are drawn:—

The mosquito serves as the intermediate host for the parasite of yellow fever, and it is highly probable that the disease is only propagated through the bite of this insect.

Walter Reed, James Carroll, and Aristides Agramonte,³⁶ in an additional note on the etiology of yellow fever, give the following as their conclusions:—

1. The mosquito—*c. fasciatus*—serves as the intermediate host for the parasite of yellow fever.

2. Yellow fever is transmitted to the non-immune individual by means of the bite of the mosquito that has previously fed on the blood of those sick with this disease.

3. An interval of about twelve days or

³⁴ Med. Record, Nov. 10, 1900.

³⁵ Phila. Med. Jour., Oct. 27, 1900.

³⁶ Jour. Amer. Med. Assoc., Feb. 16, 1901.

more after contamination appears to be necessary before the mosquito is capable of conveying the infection.

4. The bite of the mosquito at an earlier period after contamination does not appear to confer any immunity against a subsequent attack.

5. Yellow fever can also be experimentally produced by the subcutaneous injection of blood taken from the general circulation during the first and second days of this disease.

6. An attack of yellow fever, produced by the bite of the mosquito, confers immunity against the subsequent injection of the blood of an individual suffering from the non-experimental form of this disease.

7. The period of incubation in thirteen cases of experimental yellow fever has varied from forty-one hours to five days and seventeen hours.

8. Yellow fever is not conveyed by fomites, and hence disinfection of articles of clothing, bedding, or merchandise, supposedly contaminated by contact with those sick with this disease, is unnecessary.

9. A house may be said to be infected with yellow fever only when there are present within its walls contaminated mosquitoes capable of conveying the parasite of this disease.

10. The spread of yellow fever can be most effectually controlled by measures directed to the destruction of mosquitoes and the protection of the sick against the bites of these insects.

11. While the mode of propagation of yellow fever has now been definitely determined, the specific cause of this disease remains to be discovered.

Manuel Gutierrez,³⁷ who up to within a short time had been adverse to the theory of the transmission of yellow fever by mosquitoes, now accepts as in-

controvertible the results of the experiments of the commission. He does not think that the mosquito should be called the *Culex fasciatus*. Giles's description of the *Culex tritaeniorhynchus* mosquito agrees more closely than with the *Culex fasciatus*. Gutierrez inclines to consider them a genus apart, because they lay different eggs.

Prophylaxis.—Major L. C. Carr³⁸ thinks that even in a filthy tropical city, without proper sewerage, without any sanitary standard whatever, the work of disinfection can be pushed to a successful issue.

This fact is fairly in evidence; the foci of yellow fever are in certain definite places in a city where it is endemic. The habitat can be located and as fast as one appears it should be guarded closely, and, with all of its belongings, disinfected thoroughly, and, as an added precaution, redisinfecting at intervals during the danger period; these places should be kept under continual surveillance and treatment, and no pains or expense should be spared to render the contagion at such points inert.

Nearly all of the best men, men of scientific attainments who have had practical experience in the care of yellow fever, and in the sanitation of cities wherein the fever was epidemic, are now engaged in laboratory work, endeavoring to demonstrate which germ is responsible for this scourge. The object is a most laudable one.

But would not the interests of humanity be better conserved if the sanitary measures in the cities wherein yellow fever is endemic were under the constant watch and control of some such men?

After an epidemic, this important

³⁷ Jour. Amer. Med. Assoc., Feb. 16, 1901.

³⁸ Phila. Med. Jour., Apr. 6, 1901.

work—looking to a prevention of a recurrence—is often left in the hands of inexperienced and careless persons. Why should not some of these men devote

their entire time and attention to preventive measures, giving intelligent supervision to methods that we have, and know to be reliable?

Cyclopædia of Current Literature.

ARSENIC POISONING.

Arsenic interferes with the normal metabolism, but the exact nature of the chemical changes which occur is not understood. While beneficial in very minute doses, in sufficiently large quantities it may produce inflammation in any part of the body, either applied directly or through the circulation. The stomach may be irritated by direct action, or after the arsenic is absorbed the stomach may become the seat of inflammation from the arsenic in the circulation. The arsenic in the circulation reaches all tissues. Almost all of the symptoms are produced by the action of the irritant in this manner. There can be little or no doubt that the cause of the recent Manchester epidemic was due to arsenic, because there was an absence of any other sufficient cause: sufficient arsenic was discovered to produce the symptoms of poisoning; and the symptoms were identical with those produced by chronic arsenic taken in other ways. T. Lauder Brunton (*Lancet*, May 4, 1901).

BLADDER, MALIGNANT GROWTHS OF.

The diagnosis between benign and malignant new growths of the bladder is often difficult to make. Frequently a benign growth (papilloma) degenerates into a malignant one (carcinoma). The age of the patient and the duration of the symptoms are important data. A cystitis will seldom or never supervene

on a new growth unless an instrument (catheter, sound) has been introduced into the bladder. If a cystitis develops without such an interference, the probability is that the process is a tuberculous one. Primary new growths of the bladder are three times as common in men as in women. In 75 per cent. of cases of vesical cancer, and in over 90 per cent. of the benign bladder tumors, hæmaturia is the first symptom. This is quite characteristic, particularly if the hæmorrhage takes place without any discoverable cause. In cases of vesical calculus the hæmorrhage can often be referred to exercise or to examinations of the bladder. In vesical tuberculosis there are generally other signs and symptoms besides the hæmorrhage. In new growths of the bladder, on the other hand, the hæmorrhage is generally the first symptom in an otherwise healthy subject, and the bleeding is often profuse. This sudden profuse hæmorrhage generally ceases just as abruptly as it set in.

In benign growths there is often a history of long duration, and the onset of the disease is generally insidious. The hæmorrhage recurs at longer or shorter intervals, sometimes not for many months, and it is distinctly intermittent even in the advanced stages, but it is rarely profuse or arterial in character. In the male, coition will bring on or increase the hæmorrhage. The hæmorrhage is generally relieved by rest. At

some time in the course of the disease it is of a distinctly vesical type: *i.e.*, there is blood at the end of a clear urination.

In malignant growths the hæmorrhage at the onset may be slight, but more often it is profuse. At first it is intermittent, depending on exertion, but it soon becomes more or less persistent, and becomes offensive from the presence of muco-pus and débris.

Among other symptoms called forth by a tumor of the bladder are pain and frequent micturition. In benign growths these symptoms are frequently absent. Another symptom, which is of importance only in the absence of stricture or enlarged prostate, is the inability of the bladder to empty itself completely (residual urine). Sometimes particles of tumor are voided in the urine and can be recognized microscopically. Examination under chloroform may be of value. It may be carried out by a finger in the rectum and a catheter in the bladder. The finger in the rectum feels the bladder-wall against the catheter. The careful examination with the catheter or sound may show the presence of rough areas on the vesical mucous membrane. According to Guyon, a catheter should be introduced into the bladder and the urine withdrawn. If toward the end of the catheterism bloody urine is withdrawn, there is probably a new growth in the bladder. Joseph Wiener, Jr. (*N. Y. Med. Jour.*, Mar. 9, 1901).

BLOOD, INFLUENCE OF FÆCES ON THE.

From the study of the influence of the fæces on the blood, conclusions are as follow: 1. Aqueous extracts of fæces injected in small doses into animals will produce pernicious anæmia. 2. Alcoholic extracts of fæces under the same conditions will produce a mild anæmia.

3. Etheral solutions will produce an anæmia not so severe as that caused by aqueous extracts, but, in addition, there will be hæmorrhages in various organs.

4. Extracts prepared with ether, alcohol, and water will produce pernicious anæmia and hæmorrhages. The clinical deduction is that in man a certain number of idiopathic anæmias depend upon self-intoxication as the result of absorption of products of decomposition from the intestine. Normally the products of intestinal decomposition go to the liver after having been absorbed by the portal vein. In the liver they are changed and become harmless; and if an excess of these substances is absorbed, as in constipation, the liver cannot take care of them, and they reach the blood in an unchanged state. G. Borodouline (*Russian Archives of Pathol.; Clin. Med. and Bact.*, Nov., 1900).

CHLORETONE AS AN HYPNOTIC.

In insomnia due to pain chloretone is of little value, and in insomnia due to extreme mental excitement it is inferior to hyoscine and paraldehyde. Repeated observations established the fact that it seldom was successful in the presence of fever, at least when the temperature was above 102° or 103° F. In ordinary doses it appears to be a perfectly safe drug.

Personally never more than 30 grains have been given at a single dose, but Houghton and Aldrich state that as high as 60 grains have been given at one time without producing any untoward symptoms.

It would appear that chloretone is a safe hypnotic of moderate power, which rarely gives rise to unpleasant after-effects, but of which a toleration is quite rapidly acquired; which is especially adapted for use in cases of insomnia un-

attended with pain, high fever, or pronounced nervous excitement. A. A. Stevens (N. Y. Med. Jour., Feb. 23, 1901).

CLAUDICATION, INTERMITTENT.

The symptoms of intermittent claudication are pain or paræsthesia in the legs after more or less prolonged effort at walking, which disappears after a brief period of rest, and reappears upon renewed exertion. During these attacks it has been noted that the pulse in the artery of the foot has disappeared. The feet, as a result, are cold, cyanosed, and slightly swollen, and the muscles often slightly wasted. The symptoms of this disease may last for many years; but, as the vascular condition is progressive, they usually increase in severity, and from time to time there will be spontaneous attacks of pain. In some cases the paræsthesia exceeds the pains. The patient should be directed not to make any tours on foot. The feet should be kept warm, and should be protected against the wet. Alcohol and tobacco should be forbidden, and only milder forms of food consumed. No drugs are of value, electrical treatment may cause a transient improvement in a few cases. Goldflam (Neurol. Centralb., Mar. 1, 1901).

CLEFT PALATE, RUBBER NIPPLE FOR USE WITH.

The difficulty experienced in feeding, by means of a spoon, children with cleft palate in the hospitals led to personal device of a nipple which would obviate this. The modification in the nipple consists in the attachment of a "wing" of sheet rubber which fills the cleft during the act of suckling. With the ordinary rubber nipple this device does not work well, because of the collapse of the nipple. By putting the attachment on the "non-collapsible nipple" the desired

object is accomplished. S. Lloyd (Pediatrics, Mar. 1, 1901).

CELIOTOMY, BOWEL-MOVEMENTS AFTER.

The subject of bowel-movements after celiotomy deserves special attention. In normal cases, unless direct indications should arise, the practice has been conservative. But recent writers, particularly Byford, of Chicago, and Ramsay, of Baltimore, have urged the expediency of securing evacuation of the intestines at the earliest possible moment after the operation. Whether the bowels are moved early or late, it is well to have a definite plan with regard to inducing their action. The agents to be relied on are calomel, the salines, and some form of enema. These can be employed in the doses, at the times, and under the conditions suitable for each case. Byford pays "less attention to bowel-movements than to the voluntary expulsion of gas," and gives his method as follows: "1. High glycerin enema before patient is removed from table. 2. One drachm of magnesium sulphate every hour until flatus is expelled freely per rectum. 3. If flatus is not passed twelve hours after operation I give a glycerin enema every two hours (preferably high) until the flatus passes freely per rectum between enemas." Clark adheres to the principle of this method, but gives calomel in divided doses on the night of the operation, "followed the next morning by a simple soap-suds enema." Martin apparently believes in the same theory, using calomel and the salines alternately and "glycerin enemas every twelve hours to keep the flatus going." Murphy covers the same ground, combining the methods of the last two with modifications. Senn moves the "bowels at the end of

twenty-four hours." Robert T. Morris: "Bowel-movements obtained on second day by high rectal injection of hygroscopics for osmotic effect." Boldt and McBurney have the bowels moved on the second or third day, the latter usually avoiding calomel, believing that this "generally causes at least a few hours of discomfort when given soon after operation." Joseph Price: "No hurry about moving the bowels, if the patient has been well purged and prepared. If gas is annoying, soapy water or turpentine enema, rarely required." H. A. Royster (Carolina Med. Jour., Mar., 1901).

CONVULSIONS IN CHILDREN.

Results in the study of convulsions in children may be summed up as follows: (1) 1 per cent. of the children applying for treatment at the Children's Hospital came for convulsions; (2) 10 per cent. of children between five and twelve years of age gave a history of convulsions; (3) cases that appear to be due to some manifest reflex cause may turn out to be true epilepsy; (4) other cases, where the attacks occur frequently and without apparent cause, may suddenly recover,—at least, for a considerable period; (5) children who have had convulsions may be strong and free from nervous tendencies in later life, although the proportion who have nervous tendencies seems to be greater than in those who have not had convulsions. W. N. Bullard and C. W. Townsend (Boston Med. and Surg. Jour., Mar. 7, 1901).

DUODENAL ULCER.

Treatment.—In duodenal ulcer absolutely nothing should be given by the mouth for about a fortnight. As a nutrient enema, beef-broth, 140 grammes; 6 eggs; wine, 20 grammes; sodium chloride, 2 small teaspoonfuls; beaten up for

some time and injected lukewarm, is excellent. The amount ought not to exceed 250 cubic centimetres. The nutrient ought to be varied with ordinary evacuants. After a fortnight's time a gradual return to ordinary alimentation is recommended. Surgical intervention has been followed by good results. Ladevèze (Jour. de Méd. et de Chir. Prat., Mar. 25, 1901).

ENDOCARDITIS, ACUTE.

Treatment.—In acute endocarditis the first requisite is rest in bed. The diet should be carefully regulated. Starchy and saccharine food should be prohibited. For children, milk is the best food, and it is also good for adults if it agrees with them. It may be diluted with one-third to one-half lime-water in children; with Seltzer or Vichy in adults. The patient should also be kept in a quiet room and free from all annoyances. As soon as practicable, efforts should be made to combat the systemic disorder. If it is rheumatic, the salicylates should be given with caution, in 5- to 10-grain doses, every two to four hours, with an alcoholic or diffusible stimulant; but not in sufficient quantity to produce vertigo, ringing in the ears, or constitutional symptoms. If, however, the heart acts tumultuously, a cold compress may be put to the præcordial region, and bromides, such as the bromide of sodium or monobromate of camphor, given. The latter is an excellent remedy in 2-grain doses. Two or 3 grains of Dover powder, every two hours, is excellent. Aconite in 1-minim doses, is soothing; every two hours, if there is fever.

Phenacetin may be given to adults, in 3- to 5-grain doses, with a stimulant, at bed-time, if its effects can be watched.

Digitalis and strophanthus should not be given, or, if at all, with great caution.

They are dangerous remedies in these cases. In intense arrhythmia strophanthus may, however, be tried cautiously, but it is apt to be unreliable, and, like digitalis, it should only be given in emergencies, and for a very short time. The milder remedies should be tried first. T. E. Satterthwaite (*N. Y. Med. Times*, May, 1901).

FEVERS, EVAPORATION-BATHS IN.

To cool a fever patient by applying warm water rather than cold seems paradoxical, but it is the better way, and is more acceptable to the patient.

Brandy or whisky administered before giving the bath will promote the dilatation of the superficial blood-vessels.

A rubber cloth or woolen blanket is put under the patient; strips of coarse gauze such as is used for surgical dressings are then placed on him, of sizes suitable to go fully three-fourths around each leg and arm, and the trunk; when moistened they should cling closely to the skin. There should be only one thickness of gauze. This is sprinkled with water at a temperature of 110° to 115° F., sufficiently often to keep the gauze wet, and the patient is fanned.

It is well to begin with a bath of sufficient duration to evaporate a pint of water, and in subsequent baths to be guided, as to the amount of water to be used, by the effect of the previous one. In the later stages of typhoid fever the same patient is more susceptible to the action of cold than he was in the earliest stage.

The time required for evaporation varies with the amount of moisture in the air. If one pint of water is evaporated in one-quarter of an hour, the patient's temperature will fall about so many degrees, but if there happens to be a high percentage of moisture in the

air of the room, a longer time is required to evaporate the same amount of water,—say, one-half hour,—and there would not be quite so much lowering of the patient's temperature as when the evaporation occurs in the shorter time. Therefore it is better to be guided by the quantity of water evaporated rather than by the time. F. H. Williams (*Jour. Amer. Med. Assoc.*, May 18, 1901).

GALL-STONES.

Treatment.—Among cases of gall-stones not to be operated upon are those where the first paroxysm of pain is succeeded by all the typical manifestations, where the patient becomes jaundiced on the second to the third day, and passes small stones by the natural way. Repeated attacks are not indications for operations when each time small stones are passed. When there are numerous attacks without the passage of small stones, then the question of operation arises on account of the suspicion that, besides the small calculi, there may also be large ones impacted in the gall-bladder. Those cases should not be operated upon in which, after repeated ineffectual attacks, larger calculi have been passed, for, if a large stone has been passed, others may follow. If ineffectual attacks continue to follow, operation is indicated. But a single ineffectual attack, without jaundice, indicates operation. A state of latency may be partially at times brought about by aperients, but it is of short duration. Operation is indicated in those cases where, after repeated ineffectual attacks, the uppermost stone enters and becomes impacted in the ductus choledochus. This impaction must be determined by waiting, two to three weeks being sufficient. Riedel (*Berliner klin. Wochen.*, Jan. 21, 1901).

GLAUCOMA SIMPLEX.

Treatment.—Removal of the right upper cervical sympathetic ganglion is of no service in glaucoma simplex where vision has been reduced to zero, but may be of service in arresting the disease in the earlier stages and retain vision before atrophic changes have taken place in the nerve, retina, and choroid.

After myotics and iridectomies have failed to relieve the disease, it is then when one is justified to advise sympathetomy in hope of relief from permanent blindness. Even then there is no assurance that the glaucomatous attacks will not return months afterward and destroy what has been gained.

The operation in skillful hands is not a dangerous one, nor has there been any deleterious effects upon the patient, except the numbness of the lobe of the right ear and along the inferior maxillary. D. H. Coover (*Phila. Med. Jour.*, Mar. 16, 1901).

HYDROTHERAPY.

The medical profession has been backward in adopting the use of cold water because of the erroneous idea that it produces shock. On the contrary, it produces the opposite effect when judiciously used. The desired effect of the use of cold water is the enhancement of the resisting powers of the individual. If a typhoid patient's teeth chatter while he is in the bath, the bath should be stopped. If he only shivers, the bath is to be continued, and friction increased. In treating insomnia by the use of hydrotherapy, warm water dilates the vessels and thus produces the desired effect. But if the patient gets out into the cooler air this effect is counteracted and the patient is awakened. To avoid this effect the patient should be wrapped in a warm sheet and blankets and then

placed between warm sheets with hot-water bottles surrounding him.

It is a mistake to believe that the diuretic effect of water is due to the flushing of the kidneys, and for that reason giving large quantities of liquids. Cold water acts in the stomach as it does upon the skin, causing a contraction and then a dilatation of the vessels. This stimulates the nerves, respiration, and the systole of the heart. These things bring about diuresis. Hence the giving of 1 or 2 ounces of water every two hours at a temperature of 40° F. will produce more diuresis than will a half-pint given less often. Simon Baruch (*Med. News*, May 18, 1901).

ICHTHYOL IN TREATMENT OF DEEPEST SEATED INFLAMMATIONS.

After having used ichthyol in a number of different formulæ where the resultant action has not been as desired, a formula has at last been obtained which, if used properly, will relieve deep-seated, as well as superficial, inflammations.

The formula is as follows:—

\mathcal{R} Ichthyol, 45 grains.

Lead iodide, 45 grains.

Ammonium chloride, 10 grains.

Petrolatum, enough to make 1 ounce.

The substitution of glycerin, rose ointment, or cacao-butter does not alter its efficiency.

It should be applied by rubbing upon the inflamed parts. W. T. Slevin (*N. Y. Med. Jour.*, Mar. 9, 1901).

INFANTILE SCURVY.

Etiology.—The direct causal factor of scurvy in infants is the continued use of food that lacks some essential nutritive elements or presents them in a form not readily assimilable. To put the whole

question in a few words, the cause of scurvy in infants is *continued deprivation of fresh food*.

The faulty foods may be classed in the order of their potency:—

1. The different proprietary infants' foods administered without the addition of cows' milk. These foods are responsible for the greatest number of cases, and which variety most readily induces the disease depends chiefly upon the extent of employment or the fashion at the time.

2. Proprietary foods employed with the addition of insufficient quantities of cows' milk.

3. Oatmeal- or wheat- gruel. Barley and other farinaceæ administered with water alone or with water and insufficient cows' milk.

4. Condensed milk and water.

5. Sterilized milk. Properly modified milk mixtures subjected to a temperature of 212° F. from thirty minutes to an hour or more.

6. Too dilute milk-and-cream mixtures. Laboratory mixtures with too low albuminoid percentage.

Consideration of these groups furnishes an explanation of the greater frequency of scurvy in infants reared in luxury than in the very poor. Louis Starr (Phila. Med. Jour., Apr. 27, 1901).

Treatment.—The essential treatment of infantile scurvy is the employment of a food composed of cows' milk, cream, water, and milk-sugar, properly proportioned to the age of the infant, and given, so far as the cream and milk are concerned, in the natural, fresh state; *i.e.*, not passed through the separator and not sterilized.

Pasteurization and predigestion at a temperature of 115° F. are admissible in certain cases, but should never be employed when the cream and milk are

carefully handled at the dairy and can be kept clean and sweet, and when the infant's digestion is even moderately active.

The juice of fresh ripe fruit—orange-juice especially—is a useful addition to the diet, and, when it can be taken without producing diarrhœa, is an efficient aid to rapid recovery.

For scurvy in an infant of eight months an appropriate food schedule is:—

First meal, 7 A.M.

Cream 1½ ounce.

Milk 4½ ounces.

Milk-sugar 1 drachm.

Water 3 ounces.

At 9 A.M.—One to 2 teaspoonfuls of fresh orange-juice, according to effect on bowels.

Second meal, 10.30 A.M.—Same as first.

At 11.30 A.M.—Two teaspoonfuls of raw-beef juice, free from fat, and with a little salt.

At 1 P.M.—One to 2 teaspoonfuls of fresh orange-juice.

Third meal, 2 P.M.—Same as first.

At 3 P.M.—Two teaspoonfuls of raw-beef juice with salt.

At 5 P.M.—One to 2 teaspoonfuls of fresh orange-juice.

Fourth meal, 6 P.M.—Same as first.

At 8 P.M.—Two teaspoonfuls of raw-beef juice with salt.

Fifth meal, 10 P.M.—Same as first.

If orange-juice cannot be obtained, or should it disagree, good substitutes are 2 to 4 tablespoonfuls of scraped ripe apple (raw), 2 teaspoonfuls of fresh grape-juice, or 6 solid grapes from which the skins and seeds have been removed.

In addition to the alteration of the diet very little treatment is necessary. Gentle inunction of the limbs, with warm olive-oil, may contribute to the

comfort of the patient, and some acceptable preparation of iron, as the ferrated elixir of cinchona, will assist in restoring the strength and building up the blood. If there be great prostration, strychnine and alcoholic stimulants should be administered, and all complications must be met as they arise. Louis Starr (Phila. Med. Jour., Apr. 27, 1901).

INTESTINES, SARCOMA OF.

Sarcoma of the intestine is more common than text-books indicate. It much more frequently affects the small than the large intestine. The ileum seems to be its favorite location. Sarcoma rarely produces stenosis. Dilatation is more frequent. Usually it grows from one side of the bowel entirely. The diagnosis is difficult and will always remain obscure; still, if a smooth, freely movable tumor be found in the abdomen, unless it can be otherwise satisfactorily accounted for, one should be reminded of the probability of sarcoma of the intestine, especially if there is also present the general picture of sarcoma, with its peculiar anemia. C. Van Zwalenburg (Jour. Amer. Med. Assoc., Mar. 9, 1901).

IODOMUTH.

Iodomuth used for dressing wounds, discharging surfaces, etc., is clean, effective, and practical, as well as scientific. Iodomuth is a new preparation of bismuth, containing 25 per cent. of iodine. It is reddish brown in color, thoroughly antiseptic, and sedative, without the unpleasant odor of iodoform and like preparations; it is superior to boric acid, in that it is more hæmostatic. W. Harpur Sloan (Phila. Med. Jour., May 11, 1901).

KIDNEY, MOVABLE.

Treatment.—From 90 to 95 per cent. of symptomatic movable kidneys can be

relieved symptomatically by the judicious use of the corset. Those cases in which the kidney is at the pelvic brim, as a rule, give the least trouble. Fixation only transfers the weight from the vascular pedicle to a cicatrix. This treatment does not achieve all that is desired. Mechanical means are superior to operative procedure. Belts and pads have their advantages. The prevailing style of corset is a good one, and should be as long in front as can be worn. A corset two inches smaller than the size usually worn should be selected. The lacing should be from below upward, pushing the kidney well up beneath the ribs before fastening the upper hooks. The corset should be fastened on before the patient rises in the morning. Great attention should be paid to the general health of the patient. A. Ernest Gallant (Phila. Med. Jour., Apr. 27, 1901).

Very little success has been personally obtained with appliances, and it is preferred to anchor the kidney by means of gauze. The objection to the suture is that it may cause urinary extravasation. The kidney-substance is too soft for the stitches to hold, and inflammatory tissue is the only real cause of holding even when sutures are inserted. J. B. Deaver (Phila. Med. Jour., Apr. 27, 1901).

METABOLISM, THE INFLUENCE OF BILE ON.

Case of a married woman, in whom the gall-bladder was emptied of stones and a biliary fistula made, the duct being left untouched. After the operation the discharge of bile from the wound was constant, the stools remained colorless, and repeated tests failed to show bile acids in them. A series of experiments was performed upon the patient to de-

termine the influence of bile on metabolism. The experiments were divided into three periods, which were similar in all respects except that in the middle period the patient received 30 grammes of dried ox-bile daily. From the experiments it is concluded: 1. That bile increases the digestion of fat when given by the mouth in pill form. The percentage of fat lost in the stools of the patient with complete biliary fistula was 63 per cent. in the first period and 57 per cent. in the third. Under bile medication the stools contained 23 per cent. less fat than in the first period and 17 per cent. less than in the third. In other words, bile increased the digestion of fat relatively by 50 per cent. 2. That the digestion of nitrogenous food is improved by bile pills, when the amount of fat in the stools is large. Instead of an average of 15 per cent. being lost in the faeces, but 7 per cent. escaped digestion during the four days the patient took bile. 3. That ox-bile is a cholagogue. 4. That the effect of the bile on the bowels in this case was not remarkable, although they moved more satisfactorily during the bile period. 5. That urea and nitrogen were excreted in greater amount in the bile period than in either of the other periods. No definite conclusion as to the general effect of bile on body-metabolism can be drawn from this fact that because more nitrogen was ingested during the bile period. 6. That the amount of urine was increased more than 50 per cent. during the bile period. Although the bile pills were coated with salol, the amount of that drug administered was not enough to produce this effect. On the other hand, in taking 30 pills daily the patient drank several extra glasses of water, and in the second experiment her general condition was naturally better than at

any other time. E. P. Joslin (*Jour. of Experimental Med.*, Mar. 25, 1901).

NEURALGIA, TREATMENT OF TRIFACIAL.

Conclusions regarding the treatment of trifacial neuralgia are:—

1. The essential cause of trifacial neuralgia in a given case is usually unknown, and, as it may be either a central or peripheral disease or a general constitutional condition, there is apt to be a corresponding uncertainty in the treatment, especially, perhaps, in the medical measures used at the onset of the case.

2. The period of medical treatment should be distinctly limited to severe cases where the attacks succeed each other after only short intervals, and, if unsuccessful in controlling the disease, should not extend beyond six months to a year. Of course, the medical treatment will vary with the supposed character of the case, but as a routine treatment very large doses of strychnine and similar doses of the salicylates have found favor with some neurologists.

3. Operations on the peripheral nerves should still be done (in spite of the uniformity of recurrence) and are especially likely to do good when the disease is distinctly limited to either the second or the third division of the nerve, and when there is evidence to show that there is a peripheral neuritis. In view of the atrophy of the cerebral centre which must follow the excision or destruction of a nerve-trunk, peripheral operations might still effect a cure even if the cause were central. If very thoroughly done (as by the Carnochan or Saltzer operation) the results are excellent, and, although the disfigurement is about as great as after an intracranial operation, the lesser mortality will often seem to

justify their performance even in bad cases.

4. In exceptionally severe cases affecting all the divisions of the nerve, with frequently recurring paroxysms, and with no immediate relief from medical treatment, the intracranial operation may be considered as a primary operative procedure. As a rule, it should be resorted to only after failure of medical treatment and of peripheral operations.

5. The method of approach which is to be preferred is the modification of the Hartley-Krause operation elaborated by Cushing. It is reasonable to suppose that this method will aid in reducing the present mortality (20 per cent.) and in increasing the percentage of cures (90 per cent.), though the latter result must be regarded as problematical.

6. The operator may limit his interference to evulsion of the second and third divisions between the ganglion and the foramina, with the knowledge that this has been followed by cure in a number of cases. By doing so he lessens the risk of injury to the abducens nerve and to the cavernous sinus, and, by leaving the first (ophthalmic) division untouched, the later danger of trophic change in the eye. This course of action is favored by the knowledge that primary and exclusive disease of the first division has never been known to occur.

It is quite possible, however, that further observation will show that it is better to remove the entire ganglion, with its motor and sensory roots. J. William White (Univ. of Penna. Med. Bull., Mar., 1901).

NEURASTHENIA.

Among the many types of neurasthenia, there are at least four with fairly well marked characters: There are those due to anxiety and mental distress; cases

due to overexertion and stress; others due to beginning degeneration of the neuron and destined to go on to organic breakdown, and a fourth due to toxic causes. In this last class there seems a definite cycle of symptoms: There is headache, fullness in the head, irritable temper, lack of ability to concentrate the attention, irregular flushings, dyspeptic symptoms; regurgitation, eructation, constipation, foul and feculent stools are common. There is a definite mental cycle. From noon until 9 P.M. the patient feels better, from that time the patient gets worse until 4 A.M.; when he awakes he is extremely depressed, and remains so the entire morning. At noon greater cheer comes, and the cycle repeats itself. M. Allen Starr (Med. News, May 4, 1901).

PANCREATITIS.

Symptoms.—The symptoms of pancreatitis are as yet but vaguely distinguished from affections of the gall-bladder; indeed, when complicated with jaundice one cannot differentiate these conditions. It is, however, generally agreed that an extensive and rapid loss of weight is very significant, particularly in the presence of clay-colored stools. Glycosuria is a tolerably constant symptom, but it appears too late to be of any diagnostic value. Fat-necrosis is to be expected, although it is found only after operation; and, since it occurs in other conditions, is not pathognomonic. Lipuria has been cited as an aid in diagnosis, but recent researches show that but little of the accumulating fat passes by means of the urine. If the urine in a case of pancreatitis be tested with phenylhydrazin, singularly-arranged yellow crystals appear very constantly.

Hæmorrhage, probably the direct result of the reduction of the calcium of

the blood, may supervene at any moment and cause death very suddenly. A. W. Mayo Robson (Med. News, May 18, 1901).

PERINEUM, NEW METHOD OF SUPPORTING.

When the perineum is fully distended, it is carefully watched to await the appearance of the anterior fontanelle. Then when the posterior edge of it appears, the head is seized and made to rotate to about 40 degrees, so that it shall engage from the vulva obliquely. It is important that the head be allowed to engage in the vulva in the antero-posterior diameter, and be rotated only after the anterior fontanelle has presented itself. J. Hofbauer (Centralb. f. Gynäk., Feb. 2, 1901).

PETROLEUM, PHYSIOLOGICAL ACTION OF.

From experiments the following conclusions concerning the physiological and therapeutic action of petroleum emulsion may be adduced:—

1. Inhibitory to the growth of putrefactive and pathogenic bacteria such as are met with in the alimentary canal, while it does not inhibit or interfere with peptic or pancreatic digestion.

2. And therefore is an agent for relieving flatulence by preventing fermentation in such conditions of the bowel; in fact, it acts the part of an intestinal antiseptic.

3. By its action in stimulating peristalsis, increasing diffusibility of intestinal contents, it not only increases nutrition and weight, but helps the natural movements of the bowels, by its lubricating power relieves constipation, and favors the elimination of noxious and toxic products from the system.

As to its weight-increasing action,

PILOCARPINE IN INFLAMMATIONS.

there can be no doubt of that in face of the results of the experiments recorded.

1. The weight gained under its influence is much greater in proportion than it or any other oil could afford, even if digested and absorbed.

2. Petroleum is perfectly incombustible chemically, and indigestible, but the result of the experiments in this direction at once shows that, though this be the case, yet, when the emulsion is mixed with digested food-material, the effect is very different. Its action then is to cause an increased flow of this digested assimilable material (which is weight-giving) through the portal system to the blood and tissues in a given time, which, being deposited each day, leads to accumulation of weight in the tissues of the body. The greater the rate of elimination from the body, the slower will be the increase of weight under the influence of the emulsion. G. B. White (Jour. of Med. and Science, Feb., 1901).

PILOCARPINE IN INFLAMMATIONS OF THE EYE.

Gratifying results obtained with pilocarpine in the treatment of interstitial keratitis, traumatic purulent iritis, vitreous opacities, and retino-choroiditis. Some nerve specialists place great reliance upon the drug in toxic insanity after influenza, auto-intoxication, and similar processes, the brain rapidly clearing after two or three sweats. Apart from its action hypodermically, pilocarpine or the fluid extract of jaborandi, in small doses by the mouth, have been found to be of value, especially in degeneration of the vitreous. The persistent nausea so common after the use of the drug is usually relieved by small doses of ephorodine, as suggested by Dr. H. C. Wood. H. F. Hansell (Phila. Med. Jour., May 4, 1901).

PLACENTA PRÆVIA.

Treatment.—The induction of premature labor and the orderly conduct of the delivery, with proper assistance, afford the best opportunity to carry out a rigid aseptic technique. The vagina, external genitals, and the adjacent surface of the thighs should be scrubbed with soap and water and thoroughly douched with bichloride solution as a preliminary to the obstetrical manipulations. The hands of the obstetrician should be sterilized by prolonged scrubbing and by soaking them for at least three minutes in corrosive-sublimate solution, 1 to 1000. The use of rubber gloves sterilized by boiling is especially to be commended in the management of these cases. C. P. Noble (Therap. Gaz., May 15, 1901).

PNEUMONIA IN CHILDREN.

Treatment.—When fever begins, 1-drop doses of aconite should be given, repeated every hour, with or without fresh spiritus Mindereri; of the latter, $\frac{1}{2}$ -teaspoonful doses every hour until a general diaphoresis is produced.

Calomel is to be given until a liquid green stool is produced.

Water will carry off toxic products through the gastro-intestinal tract and also stimulate the flow of urine: it is also valuable to aid in producing diaphoresis, and will be very grateful while fever is high. Therefore it is to be given *ad libitum*.

Children cough and invariably swallow their expectorated matter: therefore an occasional dose of calomel or castor-oil must be ordered throughout the whole course of treatment.

It is a personal rule not to give antipyretic drug treatment at all, but to rely entirely on the cold pack: and if the temperature gives rise to nervous symptoms or cerebral symptoms, such as con-

vulsions or stupor or delirium, the tub-bath will be found advantageous. The tub-bath is to be given tepid as a full bath, the temperature to be 90° F. and gradually cooled to 70° F. by the addition of cold water or a piece of ice. The duration of the bath will depend on the amount of shock produced; but usually the bath need not be prolonged for more than from three to five minutes. Vigorous rubbing of the body while the child is in the bath will stimulate the circulation and prevent collapse. In very young and delicate infants it is advisable to give a few drops of Hoffmann's anodyne immediately before giving the bath.

A mustard foot-bath will invariably stimulate the circulation and promote diaphoresis, and in this manner lower the temperature. The mustard best to be used is *pulvis sinapis nigri*, known in commerce as German mustard. It is best used by sewing about an ounce into a small bag made of cheese-cloth, immersing this bag a few minutes before placing the child in the tub, and adding enough water to make a full bath covering the feet and ankles to the knees. The duration of the bath is to be about two minutes.

Intense dyspnoea will best be relieved by applying dry cups over the thorax, three on each side anteriorly and posteriorly, to be repeated in a few hours if relief has been afforded thereby.

Oxygen can best be obtained by proper ventilation. This should consist in excluding all persons having no active business in the management of the case, opening the windows, screening the patient from draughts, and enforcing absolute quiet. One should induce sleep by Nature's methods unless severe symptoms demand treatment, and then only codeine is to be given. This latter drug is safe, in small doses, $\frac{1}{10}$ grain, to be

repeated in an hour or two if no effect has been produced. The latter dose is for a child one year old. Older children can be given more in proportion; younger children one-half the dose, or $\frac{1}{20}$ grain.

Where a toxæmic condition exists, stimulation by some good Tokay wine or some good whisky properly diluted is of value.

The sheet-anchor of the treatment should be to feed the patient, and thus try to sustain life until this acute disease terminates. Milk, to which a small quantity of whisky is added, will be well borne. Good soups, with or without cereals, like hominy or sago or farina, will prove useful. The raw white of an egg, beaten with some sugar and a few drops of whisky, will serve a good purpose. If the pulse and heart do not need stimulation, egg-albumin, alone or added to milk, will prove very useful. Louis Fischer (*N. Y. Med. Jour.*, Apr. 27, 1901).

PREGNANCY AND LABOR COMPLICATED WITH TUMORS.

It cannot be too strongly set forth that in cases where a fibroid has obstructed labor and has been successfully "pushed up," as the phrase goes, if any dangerous symptoms supervene during the puerperium, then celiotomy, followed by myomectomy (or hysterectomy if the need be), should be carried out without delay.

In a very large number of instances fibroids and pregnancy co-exist and no harm ensues, for, though the tumor occupies the pelvis in the early stages, it is so much "part and parcel" of the uterus that, as the enlarging organ rises out of the pelvis, it carries the fibroids with it. In the case of an incarcerated ovarian tumor it is different, for, the more the fundus of the uterus ascends,

the more the ovarian pedicle elongates and the more perfect the incarceration becomes.

From a very broad survey of this question, the following deduction has been reached: Ovarian tumors have given more trouble to pregnant and parturient women than fibroids, but fibroids have been far more lethal, as they so frequently destroy puerperal women from sepsis. J. Bland Sutton (*Lancet*, Feb. 16, 1901).

RENAL DISEASE, DIAGNOSIS AND TREATMENT OF.

Experiments continued in determination of the freezing-point of the blood and the urine as a means of diagnosis in renal disease give the following results in over 100 cases: The normal freezing-point of the blood is 0.56; 0.55 or 0.57 is fairly good, but, if the freezing-point is 0.58 or more, operation is inadvisable. The determination of the freezing-point, the estimation of urea, and the phloridzin test are among the most necessary diagnostic tests.

First, the freezing-point of a mixed specimen of urine is determined: if this is normal, it is certain that at least one kidney is functionally sound; then both ureters are catheterized and the freezing-point is tested to determine the functional capacity of each kidney. By this method operation under dangerous conditions is avoided: for example, in cases of stone in the kidney or tumor in which it seems likely from the clinical symptoms that there is full functional capacity. However, there are operative cases in which the freezing-point is relatively low. Examination of the kidney at operation in 27 cases has demonstrated the value of the phloridzin, freezing-point, and urea tests when used together, and in the other cases in which operation was

refused because of the information thus obtained, it has been frequently found by pathological examination that the tests are reliable. Kümmell (XXX Congress German Surg. Assoc.; American Medicine, May 4, 1901).

SALINE INJECTIONS.

Autotransfusion can only be considered as a good transient expedient, applicable until saline injections can be used, or to supplement the latter. For all practical purposes the infusion of saline solution alone deserves consideration as a therapeutic agent. It is indicated in the following conditions:—

Hæmorrhage, from whatever cause, and especially the obstetrical hæmorrhages.

Shock, with or without loss of blood.

Collapse, occurring in the course of any disease, particularly cholera, cholera infantum, typhoid fever, and especially in the collapse after severe operations.

Puerperal infection, in which the salt solution is given to increase the power of the tissues and blood to resist the action of the microbes, destroy them, and assist Nature in throwing off their effects. It should be given hypodermically in 2-ounce doses, twice daily for some days. Good results have followed such a practice, and it may be that other infectious diseases would be benefited by similar treatment.

Epilepsy and puerperal eclampsia, especially after a preliminary bleeding.

Uræmic convulsions, both after bleeding and as a diluent of the blood, and to favor the elimination of urea by the kidneys.

In poisoning by coal-gas or by narcotics it is a powerful aid to elimination.

Anæmia, in the different forms, to be followed by appropriate food and medication.

In all cases the treatment must be considered as the most helpful expedient that can be used to bridge over the gravest emergencies, and thus gain sufficient time in which the slower-acting, but more permanently useful, remedies may exert their curative effects. G. W. Wagoner (Phila. Med. Jour., May 11, 1901).

STAMMERING.

After five years of experience, during which time 5000 cases of stammering have been treated, the cause is, like the cause of asthma, found to be unknown. Speech is an acquired faculty, and it is a wonder why all people do not stammer. It is not an organic disease, but 33 per cent. of the cases show a history of inheritance. Possibly they inherit the nervous disposition. To say adenoids produce stammering is misleading. It may induce the habit in a nervous case predisposed to it. In the same way any nasal obstruction, such as a deflected septum, may be the cause of this disease. Operation will only place the patient in a suitable condition for physical training. Particular stress is laid on the efficacy of correct breathing, as an aid in the prevention of stammering. Constant respiratory exercise is the key-note to the cure. The patient should not think of what he is saying so much as how he is breathing. Diaphragmatic breathing is to be carefully controlled and gotten under the will of the patient. The causes of stammering are multifold, but the main cause is probably largely psychical. G. H. Makuen (Med. News, Feb. 23, 1901).

TONSILS AS PORTALS OF INFECTION.

It has been shown:—

1. That the normal tonsil has a phys-

iological function, probably protective to the organism.

2. That being in itself often diseased, the physiological function of the tonsil is impaired, and that instead of being protective, it is the nidus for the growth and distribution of pathogenic organisms and their poisonous products into the system.

3. That many grave and fatal general infections have their origin in the tonsils.

4. That, if the exanthemata, especially scarlatina, are of bacterial origin, the tonsil acts in part as port of entry.

5. That acute articular rheumatism and the diseases often associated with it, endocarditis and chorea, in a great majority of cases are due to the action of attenuated bacteria, their toxins, or both entering the general system through a diseased tonsil.

6. That, in rare cases of typhoid fever in which no intestinal ulcerations can be demonstrated, the similarity of the tonsillar tissue and Peyer's patches suggests the portal of entry of the Eberth bacillus into the tonsil.

7. That scrofulosis is often associated with diseased tonsillar tissue, and that the tubercle bacillus often enters the system via the tonsils.

8. That the tonsil is too little examined at necropsy, and that much light might be shed on fevers of uncertain origins by bacteriological and histological examination of it. Julius Ullman (*Med. News*, Jan. 26, 1901).

TYPHOID FEVER.

Abdominal Pain in.—From a study of five hundred cases of typhoid the following conclusions can be drawn:—

1. About two-fifths of the patients are free from pain or tenderness, rather less than one-fifth have tenderness only, and

pain is present at some time in about two-fifths of the cases, but during the course only in about one-third.

2. Pain due to some condition other than the specific bowel lesions was present in about 14 per cent. of all cases and in about two-fifths of the patients having pain during the course.

3. Pain occurred with hæmorrhage or perforation in about 5 per cent. of all cases and in about 15 per cent. of the cases in which there was pain during the course.

4. Pain was most constantly present with perforation, when it was usually sudden in onset, severe in character, and paroxysmal in occurrence. The pain of perforation was most closely simulated by that occurring in some cases of hæmorrhage, that from phlebitis, and that of unknown origin.

5. In about two-fifths of all cases with pain during the course no cause could be found. Should this occur with other abdominal symptoms the condition may much resemble perforation. Thomas McCrae (*N. Y. Med. Jour.*, May 4, 1901).

Hygiene.—The hygienic conclusions regarding typhoid fever are:—

1. The urine of typhoid-fever patients should always be disinfected. From a hygienic stand-point bacteriological examination of the urine of patients convalescing from typhoid fever is important and should never be omitted before patients are allowed to go at large, so that proper precautions may be taken to guard against the dissemination of typhoid bacilli by the urine. This is an often-neglected source of infection that should be seriously considered in the hygiene of typhoid fever.

2. Faeces, of course, should be disinfected at all stages of the disease; but, the organisms being present generally only from the beginning of the second

week to the fall of the fever and the patient during this period usually being confined to bed, the faeces are not such a source of infection to the community at large as the urine.

3. The bacilli may, on account of the lung and throat lesions, be present in the mouth of those suffering from typhoid fever; hence the expectoration should be disinfected, as well as all eating utensils, etc., used by the patients. P. H. Hiss, Jr. (Med. News, May 11, 1901).

The Heart in.—It is personally believed that the real benefits from the natural or artificial Nauheim baths are dependent on cutaneous stimulation by the billions of gas-bubbles contained in the carbonated baths.

Of late these have been employed with excellent results, not only in the treatment of typhoid fever and pneumonia, but in chronic diseases of the heart; a procedure called the *siphon method*. It is suggested for its simplicity and efficiency. The patient is prepared in the usual manner for taking a sponge-bath, and beyond this no disturbance of the patient is necessary. Then a siphon-bottle containing the carbonated liquid is gradually discharged over the surface of the body, notably on the thoracic region. If one wishes to comply with the requirements of the Schott system, although stimulation is not so pronounced, the siphon-bottle may before use be immersed in hot water until the requisite temperature is attained. Within a few minutes one may note after the employment of the siphon method a reduction of the pulse from 10 to 20 beats a minute, which rate is maintained for a varying period of time. The pulse becomes likewise endowed with more strength, and there is a feeling of exhilaration such as rarely obtains after the cold bath. Pulse-tracings taken in a convalescent

typhoid patient, with an extremely weak heart, have demonstrated the favorable action of the siphon method. Albert Abrams (Med. News, Mar. 16, 1901).

Widal Reaction.—During the last year at the Boston City Hospital it has been the custom to perform the Widal test more frequently than at first, and it has been found that, while the reaction sometimes appeared at a very late period,—twenty or twenty-five days from the onset of the fever,—nevertheless it was generally eventually obtained.

The method of applying the test has been the following: A few drops of blood have been drawn from the patient's ear into a small section of glass tubing, sealed at one end by heat and left open at the other. After the serum has separated, 1 drop of it is mixed with 10 drops of an active culture of typhoid bacillus, twenty-four to thirty-six hours old. The dilution is, therefore, 1 to 11, or 9 per cent. For a control, a few drops of an unmixed culture is usually put on the other end of the slide. If immobility and clumping are present in the serum-culture mixture in the course of one-half hour, the reaction is reported as positive, otherwise not. In the majority of cases the reaction appears in ten to fifteen minutes.

At the City Hospital during a period of six months, from May 28 to November 28, 1900, there were 253 cases of typhoid fever in the hospital which were tested, repeatedly, by the Widal reaction, in all cases until a positive result was obtained. In 10 of these cases there was a constant absence of Widal reaction, or 4 per cent. of failures.

A typical instance of the tardiness of the Widal response is illustrated in one case, where, after eight consecutive failures, it was positive for the first time on the twenty-ninth day. C. F. Withington

(Boston Med. and Surg. Jour., May 9, 1901).

UTERUS, REMOVAL OF CANCEROUS.

In the removal of the cancerous uterus personal technique is as follows: After opening the abdomen the ligamentum infund. pelv. is tied by ligatures and divided, thus laying the broad ligament open. The two portions are then pulled as far apart as possible, and the posterior one is divided. Then the ureters and vessels are freed and as much of the cellular tissue as can be seen, together with the lymphatic glands, is removed. Now the uterine arteries are tied at the level of the internal os, and dissected downward until the horizontal portion is reached. This is tied again, either high up or low down according to circumstances. All glands that are still attached to the uterus are removed, and then the peritoneum and the abdominal wound is closed. The patient is now placed in the lithotomy position, and after incising the vaginal vault the vesico-uterine fold is opened. Sponges are now applied on holders, and the condition of the tissues, now exposed, is thoroughly examined. According to the condition, more or less of the peritoneum and other tissue at the floor of the pelvis is cut away. The vaginal wound is now completed, and the uterus and the adherent tissues delivered through the vaginal wound. By this operation the risk of septic infection is not greater than by a single abdominal or vaginal operation, and it allows a very thorough clearing out of the infiltrated portions of the pelvic tissues. A. Funke (Münchener med. Wochen., Feb. 5, 1901).

VAGINITIS IN CHILDREN.

Treatment.—Unless the vaginitis is a specific vaginitis it is best not to use in-

jections, because infection may be carried into the upper part of the vagina by the washes or douches. The mother is directed to wash the vulva with warm water several times a day and then use subnitrate of bismuth, boric acid, or—what is a very good combination—stearate of zinc and boric acid. If the gonococcus is found, that is generally not sufficient. Then one can take a soft-rubber catheter, pass it into the vagina for perhaps one-half inch, and use the injection. A 2-per-cent. protargol does very well in these cases. The constitution must be built up, particularly in the non-specific variety; one may have to give iron, codliver-oil, and regulate the diet very carefully before a cure is obtained. Henry D. Chapin (N. Y. Med. Times, May, 1901).

VERTIGO: A STOMACH LESION.

In regard to the mechanism of *vertigo e stomacho* it is personal opinion that this symptom is brought about by either or all of three causes, to wit: 1. Reflexly through direct irritation of the gastric branches of the pneumogastric and thence by the lower cervical ganglion to the vasomotor nerves of the vertebral artery, which supplies the internal ear. 2. By toxæmia from amulon, and other ptomaines, nicotine, alcohol, reabsorption of bile, the toxins of the infectious diseases, etc. 3. By direct pressure upon the heart through distension of the stomach and intestines by gases, resulting principally from so-called amylaceous indigestion and hyperchylis.

The treatment that has proved curative in the most alarming, as well as recurring, cases is the correction of the gastro-intestinal disorder. This has in most cases been accomplished by the administration of a glass or two of hot water half an hour before meals, with

some sodium bicarbonate before breakfast, and from 3 to 4 grains of diastase with each meal, preferably in combination with $\frac{1}{20}$ to $\frac{1}{10}$ grain strychnine and in some instances a pepsin ferment. The patient should also be instructed as to the theories and importance of thorough mastication and appropriate diet. Martin A. H. Thelberg (Med. News, Mar. 23, 1901).

WOUNDS DISINFECTED WITH PURE CARBOLIC ACID.

Carbolic acid in concentrated solution is relatively less toxic than when diluted, its penetrability during its brief influence is but slight, and the bactericidal action of pure carbolic acid surpasses that of sublimate in albuminous compounds. It has personally been employed in more than eighty cases of infected wounds, phlegmons, suppuration of joints, etc. After incision, and subsequent curetting or excision of the wound, the surrounding skin is protected against the excess of carbolic acid, by wetting it with absolute alcohol; the

wound is then thoroughly swabbed with a gauze sponge previously immersed in pure carbolic acid. The amount of carbolic acid employed depends upon the size of the wound, but more than 2 to 6 grains was not even used in the largest wound. The pure carbolic acid is applied for one minute, followed by immediate irrigation with absolute alcohol. Von Bruns (Phila. Med. Jour., May 18, 1901).

WRITERS' CRAMPS.

Treatment.—The treatment varies with the form of the affection. Generally, however, writing exercises, massage, and Swedish movements are of use and the correction of any faulty habits of writing, such as improper position, manner of holding the pen, etc. In the graver forms the use of mechanical appliances intended to relieve the strain on the digital muscles or do away altogether with the use of the fingers is recommended. The employment of the typewriter is advisable. I. W. Zabłudowsky (Vratch, Jan. 13, 1901).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Transactions of the Seventh Annual Meeting of the American Laryngological, Rhinological, and Otolological Society. May 31, June 1 and 2, 1900.—Section de Laryngologie et Rhinologie. Comptes Rendus publiés par Marcel Lermoyez. XIII^e Congrès International de Médecine, Paris, 1900.—Two Hundred and Thirty-seven Consecutive Abdominal Sections. By Charles Gilbert Davis, M.D., Chicago, Ill., 1900.—A Contribution to the Study of Fatty Infiltration of the Heart Secondary to "Subpericardial Overfatness." By J. M. Anders, Philadelphia, 1901.—Fatty Degeneration of the Heart. By Thomas E. Satterthwaite, New York, 1901.—Common-sense Tonic Medication, with Illustrative Cases. By A. W. Duvall, M.D., Philadelphia.—The Treatment of Forty-three Cases of Typhoid Fever with No Deaths, and with Complications in but One Case. By Edward C. Seufert, M.D., Chicago, 1899.—A Study of the Hematology of Neurasthenia. By Charles Howard Lodor, A.M., M.D., Chicago, Ill., 1901.—Some Notes on Two Cases of Voluntary Laryngeal Whistling. By G. Hudson Makuen, M.D., Philadelphia, 1901.—A Contribution to the Bottini Operation for the Radical Relief of Prostatic Obstruction. By L. Bolton Bangs, M.D., New York, 1901.—Affections of the Eye and its Appendages in Bright's Disease. By William Cheatham, M.D., Louisville, Ky., 1901.—The Cotton Crop of 1899-1900. By James L. Watkins, U. S. Department of Agriculture, Washington, D. C., 1901.

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Cyclopædia of the Year's Literature.

GONORRHEA.

Symptoms.—In a study of gonorrhœa in boys A. L. Wolbarst¹ found that the period of incubation, the general characteristics, and the history of the disease were no different from those manifestations in the adult. The incubation, from

one to seven days; the pain and burning sensations, frequent desire to micturate, and other symptoms, were as seen in the usual adult gonorrhœic. The discharge was usually profuse, but the pain seemed

¹ N. Y. Med. Jour., July 6, 1901.

out of proportion to the clinical picture presented. This hypersensitiveness was, however, coincident with contracted prepuce or meatus, which served to dam back the secretions, and, by preventing proper drainage of the urethral canal, caused retention of inflammatory products. Other children, however, suffered very little pain. Every case of gonorrhoeal urethritis offers a most eloquent plea for the circumcision of all male infants, when the possibility of future gonorrhoeal infection is thought of.

Complications occur in young boys similar to those of adult patients, after the disease has lasted several days. Posterior urethritis, prostatitis, and epididymitis have occurred in these cases. There was a total inability to pass urine in one case. The disease also lasts from four to six weeks.

Diagnosis.—Oscar Richardson² remarks that the important diagnostic point for the gonococcus is its property of decolorizing by Gram's method. The other points, of morphology and position inside the leucocytes, are not necessarily characteristic.

In the application of the method of cover-glass examination combined with Gram's method of staining for the identification of the gonococcus, the most important precaution is to smear the pus properly on the cover-glass. Usually it is too thick.

The best preparations are those obtained by scraping off the pus from the cover-glass as much as possible with a platinum loop or knife-point, after it has been placed thereon.

Another important precaution to be observed is to be sure that the aniline oil gentian-violet solution has not decomposed. This solution should not be used when it consists simply of a clear fluid and a brown sediment. To avoid

errors in this regard the solution should not be more than two weeks old.

Etiology.—A. L. Wolbarst³ has seen 22 cases of gonorrhoea in boys, the subjects ranging from eighteen months to twelve years of age. The secretions were stained by the Gram method, and the specific *Neisser gonococcus* was demonstrated in every case.

The history of these cases has been commonly attributed to infected water-closets, soiled linen, etc., but a very careful inquiry into the prevailing social conditions leads to the belief that the cases under observation were infected in the usual way. This is especially true in the districts where the poor are crowded together in tenement-houses, where the children are alive to the enjoyments of sexual gratification at an extremely early age, and where the dark cellars, the water-closets, and the roofs afford splendid opportunities first for experiment and, later, for enjoyment. It is not at all uncommon to learn that boys and girls who have not yet reached the age of puberty indulge in sexual gratification. In some of the cases there was no history of this sort, but the infection was traced to the child sleeping in the same bed with some one admittedly suffering with gonorrhoea. A number of cases were traceable to pederasty.

Complications.—Prince A. Morrow⁴ thinks that, while formerly gonorrhoea was thought to be a simple disease, it is now known to be very serious. The gonococcus has been found capable of affecting all the serous membranes. Some of the Germans go so far as to say that 80 per cent. of gynaecological affections are due to the gonococcus.

² Boston Med. and Surg. Jour., Feb. 7, 1901.

³ N. Y. Med. Jour., July 6, 1901.

⁴ Med. News, Mar. 23, 1901.

Most of the children who lose their sight shortly after birth do so because of gonorrhœal ophthalmia. This disease still continues to furnish a large contingent to blind asylums, and 10 to 20 per cent. of all the blind owe their affliction to gonorrhœal infection. Formerly the number of such cases was even larger, running as high as 40 to 60 per cent. At the present moment there are in Germany, according to Neisser, 30,000 patients who are blind because of the gonococcus. Gonorrhœa has more to do with failure of the population to increase than syphilis. At least 20 per cent. of sterile marriages are due to gonorrhœal processes either in the husband or wife, and 90 per cent. of the cases of azoöspERMIA that occur owe their origin to gonorrhœal affections of the epididymis.

Prophylaxis.—Some people have told F. G. Balch⁵ that after a doubtful connection they always take an injection of a weak solution of permanganate of potash, and that they never become infected when they have done so. For a person who understands how to take an injection, and who can be relied upon not to try it when under the influence of liquor, this may be a safe procedure; but for the ordinary run of such people it is unwise and liable to be productive of more damage than good. Patients have been seen the day after, and the urethra has been personally irrigated with permanganate, 1 to 4000, or a 4-per-cent. solution of boric acid. In none of these cases has a gonorrhœa followed; but it is doubtful whether it would have anyhow. Theoretically it should be an extra safeguard, for the gonococci would not then have penetrated the cells and could easily be reached by an antiseptic.

According to Prince A. Morrow,⁶ the suppression of prostitution and the pre-

vention of venereal diseases are indissolubly linked.

Violent measures must always defeat the object in view, because they are of necessity intermittent and spasmodic. Violence is incompatible with the sustained and continuous effort required to combat this evil. The social reformer can accomplish more by measures for the amelioration of the social condition of women; by throwing stronger safeguards around minors, especially the orphans and unprotected; by establishing homes for the reception and reclaiming of fallen women; and by furnishing means and opportunities for the rehabilitation of those wishing to reform.

The arm of the law may be effectively invoked in preventing scandalous public provocation; in suppressing the affluents of vice—the wine-shops, low concert- and dance-halls, and other disreputable resorts; in making the punishment for the seduction of minors more sweeping by raising the age of consent to 21 years; and by meting out the severest punishment against the purveyors of vice—men and women who make a trade of dealing in human flesh by enticing and selling into the slavery of prostitution innocent and unprotected young women.

Whatever may be of value of the system of regulation, as employed in continental Europe, it is safe to say that prostitution cannot be utilized in this country.

What has been termed prophylaxis by treatment appears to be the only practicable measure to restrict or limit the spread of venereal disease.

The basic principle of any system of regulation is to hospitalize and treat as many sources of contagion as possible.

⁵ Boston Med. and Surg. Jour., Feb. 7, 1901.

⁶ Phila. Med. Jour., Apr. 6, 1901.

Treatment should be free, and patients allowed to come and go at their will. More patients can be treated by liberty than by force.

It is urged that every general hospital in this city, receiving State or municipal assistance, should be required to open its doors to this class of diseases. Special wards or services should be organized for their reception and treatment. The dispensaries with venereal services should be multiplied. They should be located in convenient quarters of the city, readily accessible. Night-classes should be established for patients unable to come during the regular day hours. These services should be conducted with all the privacy possible. There should be separate rooms for women.

With the object of suppressing as promptly as possible all sources of contagion, the now obsolete practice of destructive cauterization of venereal sores, and the excision of chancre, whenever practicable, should be revived.

Conjoined with the enlarged and improved facilities for treatment there should be a campaign of education. The same plan that is employed in many foreign clinics should be adopted here, viz.: each syphilitic patient should be handed a printed slip, stating, in plain language, the nature of the disease, the modes of contagion, the risks of personal contact from erosions or mucous patches; the possible contamination of household articles, towels, spoons, drinking utensils, etc.; the risks of hereditary transmission, and also emphasize the necessity of thorough treatment.

The gonorrhœal patients should be instructed as to the details of the technic to be employed in local treatment, the possible gravity of the disease, the danger of contagion even when the discharge may have apparently ceased, the

significance of shreds in the urine, as an indication that the disease, though latent, is still uncured, etc.

Physicians should never sanction marriage until all possible danger of infection is passed.

The campaign of education should be extended to the high schools and colleges for young men.

Finally, the public should be educated to a recognition of the fact that the prostitute is largely the product of her environment. Society should deal with them as unfortunates rather than criminals.

Treatment.—Frederic Griffith⁷ says treatment of a chancreoid bubo naturally implies treatment of the chancreoid from which it sprang. The sore, thoroughly exposed, is first to be gently washed with warm water and Castile soap, forming a lather as carefully as when shaving, using absorbent cotton to thoroughly soften and remove, without causing bleeding, all scabs and discharge (a chancreoid should never be allowed to crust over); then, with cotton swabs on tooth-picks, the sore is to be thoroughly dried. With an atomizer, a strong spray of hydrogen dioxide is to be thoroughly applied directly to every interstice; if the foam becomes blood-tinged, the spraying should be discontinued. The foam is now to be mopped off and a thin wisp of cotton containing a few drops of the same drug is to be laid on the sore, then, with one steady movement, the retracted foreskin is to be drawn over the glans. The patient must be specially taught how to do this. Ordinary rolled cotton can be separated like the leaves of a pamphlet, and it is one of these thin, torn fragments that will cause the least friction and absorb equally well with a

⁷ N. Y. Med. Jour., Feb. 16, 1901.

tuft. When a phimosis or infiltration prevents retraction of the foreskin, or if there is much pain, the penis may be given baths of hot water of five or ten minutes' duration, when possible, several times daily, by inserting the organ into a can of water as hot as can be borne. If, after repeated efforts, the phimosis cannot be overcome, the foreskin is to be laid open with the median incision as for the operation of circumcision. One must assume the risk in these cases of infection of the wound taking place. The patient is to be given an ounce or two of *lotio hydrargyri nigra* (black wash), of which, after each washing and thorough drying, he may apply a drop or two on cotton, leaving it in contact with the chancroid. As the object of treatment is to dry up the sore, too much of the wash must not be applied at one time. The cotton should be changed at least every two or three hours; the washings and applications night and morning will be sufficient; the patient should take no washes or medicines to his work to excite suspicion as to his ailment. He should, also, be warned against talking about his disease.

At times a sluggish sore will do well under blue ointment (*unguentum hydrargyri*), applied daily as the wash was used. Under these modes of treatment improvement should become apparent and progressive within the first day or so, and only after a thorough trial should one turn to escharotics. Internal medication, aside from general hygienic treatment, and keeping the bowels freely open, as irritation may be increased by straining, is not often necessary, though iron, as in the form of Blaud's pills or the elixir of iron, taken twice daily, or more often if need be, is oftentimes of value. As a bubo is, until pus-formation takes place, a local affection, the

aim in early treatment should be toward the prevention of this change by the employment of abortive measures. The application at bed-time of an ice-bag, or of a towel wrung out in boiling water, or a flaxseed poultice, will, if carefully carried out with energetic treatment of the origin of the infection, allay the trouble in fully one-third of the cases.

A daily application of the following salve:—

R Unguenti hydrargyri,
 Unguenti belladonnæ,
 Unguenti ichthyolis, equal parts.
 —M.

will often do good. It should always be applied with a soft stroking movement. After the formation stage has become well advanced, instead of endeavoring to avert an abscess one should direct his energies to hurry this result by continuing the fomentations as often and as hot as possible. Pain becoming unbearable, suppuration demonstrated by fluctuation, are alike the determining factors for active treatment. After a thorough cleansing with warm water and Castile soap, followed by shaving of the parts on the side affected, a guarded, keen-edged, curved bistoury is to be plunged into the swelling until all sense of resistance is lost, or until the centre of the glandular mass is judged to have been reached. The site of puncture is denoted by the point of greatest tension: a pale area surrounded by deep purplish red coloration or one of darkest-colored hue. When the first gush of fluid has ceased, a blunt probe or a grooved director should be swept around the cavity and through the honey-combed tissues, thus opening up channels of exit. In cases where the puncture is made early for relief of pain only, and the infected gland will not discharge, 5 or 10 drops of pure carbolic

acid are to be injected through an hypodermic syringe into the centre of the gland or masses of hardened cellular tissue. Should the action be too great, alcohol, 95 per cent., will neutralize the effect if injected within a few minutes after the acid. Further loosened necrotic tissue should be removed by pressure gently, but firmly, made with a dossil of cotton or a piece of gauze held in each hand; a thorough syringing should be practiced with hydrogen dioxide, pure or diluted with from 1 to 4 parts of water, according to the amount of pain caused. This should be followed by the insertion of a loosely-twisted strip of rubber tissue, a wisp of horse-hair, or a twist of catgut, to act as a drain. The dressing is completed by dry, loose, sterile gauze and a snug spica of the groin. If the discharge is free, and, drying in the dressing, crusts and causes pain, it may be relieved by the patient himself pouring a portion of a cup of boiled water down in the inner dressing. Only enough dressing is to be applied to absorb the discharge. Walking will do no harm. The patient should be cautioned to exercise ordinary care when at work as to lifting or straining, however.

The next dressing and washing out with hydrogen dioxide should be done in twenty-four hours. Dressings at intervals of from two to four days thereafter should be made. The hygiene of the patient should be looked after: alcohol and fried, greasy, and indigestible foods are to be avoided. The bowels should be kept loose by teaspoonful doses of Epsom salts taken every other evening.

In the treatment of specific urethritis L. J. Davis⁸ requires first that the bowels be thoroughly moved and kept free during the treatment. The diet should be restricted. Abstinence from all alcoholic beverages and a reduction in the amount

of tobacco is necessary. When the urine is markedly acid, potassium citrate should be given to render it alkaline and also as a prophylactic against chordee; and, if there is tenesmus, tincture of hyoseyamus is to be added. Absolute rest, as far as possible, should be enjoined, and plenty of an alkaline water should be drunk during the day. Second: Protargol in $\frac{1}{2}$ - to $\frac{3}{4}$ -per-cent. solution is to be used as an injection, with a blunt-pointed syringe. The irrigation method in personal hands has not been a success, and in the majority of cases is dangerous. The injections should be begun as soon as the diagnosis is made. The patient should be provided with a syringe holding 10 cubic centimetres, having a glass barrel and a blunt tip, especial care being given that the piston works freely, so that undue force may not be exerted. The contents of a syringe of this capacity will fill the urethra and smooth out the folds in the mucous membrane, thus bringing the medication in contact with all diseased portions. The patient is instructed to inject two syringefuls of a 0.6-per-cent. solution of protargol, four times a day, each injection to be held five minutes. The injections are to be continued twice daily for four or five days after the discharge has disappeared.

Gerald Dalton⁹ says in acute gonorrhoea rest is the most important measure, preferably in the recumbent position. As rest cannot be taken by many, the patient should be instructed as to the worst forms of exercise. He should be told never to walk if he can ride, to sit rather than stand, and to absolutely avoid horseback-riding, cycling, dancing, and rowing. Support of the testicles is useful,

⁸ N. Y. Med. Times, July, 1901.

⁹ Edinburgh Med. Jour., July, 1901.

with a neatly-fitting suspensory bandage. Diet is of the utmost importance, plain nourishing food being required. It is a good plan, if possible, to give patients a written list of articles to be avoided in both eating and drinking. All highly-seasoned dishes, and meats, fish, etc., re-cooked; curries, salads, soups, asparagus, tomatoes, pastry, sauces, pickles, mustard, and pepper; alcoholic liquors, ginger-beer or ale, home-made lemonade—should all be prohibited. It is doubtful if aerated waters should be permitted, as all carbonated drinks are genito-urinary irritants. The dressing of the penis should be inquired into, rubber bags entirely condemned, and any arrangement that presses on the penis, or allows that organ to be in constant contact with the pus oozing from the meatus, should not be allowed.

Soaking the penis in hot boric baths is useful and comforting to the patient. The bowels must be kept freely open, a cathartic pill every third day during the acute stage is advisable. Saline cathartics and the natural waters are to be avoided.

The urine should be kept alkaline and bland, by potassium bicarbonate and acetate, combined with tincture of hyoscyamus. For the relief of chordee, etc., the hard bed and towel with a knot are of value. The following injection will be found very useful also:—

R Liq. morph. hydrochlor., 15 minims.

Cocaine hydrochlor., $\frac{1}{2}$ grain.

Aq., ad 2 drachms.

M. Inject into the urethra and hold five minutes, just before retiring.

Suppositories, bromides, and chloral, with phenacetin and antipyrin, may be used.

Local treatment has always been a

much-debated point; but, irrigation having been decided upon, the earlier it is begun, the better.

For the purpose of irrigation the apparatus described by Dr. F. C. Valentine is the most convenient and cleanly. It consists of a receiver of varying capacity, one holding a litre being the usual size; rubber tubing with metal shield and glass nozzle completes the apparatus; the receiver travels up and down a slide, which is fixed against the wall, the upper end being nine feet from the floor. The patient should be reclining on a couch, with the shoulders raised. The parts being fully exposed, and the clothes protected by towels, the receiver is filled with the chosen solution, made hot, and run up to the top of the slide.

A basin, or receiver, is placed between the thighs, well up beneath the testicles; a suitable nozzle having been selected, according to the size of the meatus, it is fixed to the rubber tubing; the stop-cock is then released, and the glans and prepuce are washed with the solution; the penis being held by the left hand, the thumb and forefinger on the glans, the other three fingers being pressed on the under surface of the penis, against the urethra. The nozzle is then introduced loosely into the meatus; the stop-cock, not being fully turned on, does not allow the full force; therefore the anterior urethra only is flushed. When the receiver is two-thirds empty the nozzle is firmly pressed into the meatus, and the stop-cock fully turned on. The patient is then directed to take a deep breath, and make an effort to pass water, when the solution will pass through the compressor muscle into the posterior urethra and bladder. The bladder should have been emptied some half hour before the operation is commenced, in which case he will be able to hold all the solution

(one-third of the receiver) until the completion of the irrigation. In cases where this is found to be not possible, the stop-cock is closed, the nozzle withdrawn, and the patient is directed to empty his bladder into a urinal, after which the nozzle is again firmly introduced, and the posterior urethra and bladder flushed with the remainder of the solution, which, in turn, is expelled.

It is advisable that these irrigations should be performed twice daily, morning and evening; but in ordinary private practice daily irrigations are the most that can be hoped for.

If this treatment be continued for a fortnight, in cases seen early the patient will escape with very little pain or discharge, and at the end of that period there will probably be left only a few clear or milky drops. Irrigation seems to have exhausted its utility at this point, and now the patient is instructed to use himself an astringent injection, three or four times daily. Such a one should be retained in the urethra from one to four minutes. This, continued for a week, will probably complete the cure. A mixture of large doses of potash, bicarbonate and acetate, with salol and hyoseyamine, frequently aids local treatment, and sandal-oil and catechu may also be exhibited internally.

According to F. G. Balch,¹⁰ in the very early stages the disease is confined to the anterior urethra and an injection that will reach that part of the canal is all that is required. He has been more successful with nitrate of silver than with anything else, used as follows: First, the patient empties his bladder. Next, the urethra is irrigated with plain boiled water. An ordinary McElroy glass syringe with a blunt end serves very well for this purpose. Then the penis should be stripped gently to get

out all the water possible and a syringe-ful of the silver solution injected. If the lips of the meatus are puffy, solution of a strength of 1 grain to the ounce is used. If there is evidence of very active inflammation, 2 grains to the ounce are used. This should be held in for about a minute, when it should be allowed to escape, and the urethra should again be washed out with water. This is to be done twice the first day. The strength of the solution is to be increased to 2 grains to the ounce the second day, and the next day to 3 grains to the ounce. Higher than this it is unwise to go. There is usually some scalding with the first one or two injections, but nothing unbearable, and after two days patients usually do not complain. Scalding on micturition often ceases after the first injection. The discharge becomes thin and watery after a few days, and often ceases after five or six days. It returns if the treatment is then discontinued, so that it is best to continue the injections for several days more, gradually decreasing the amount of nitrate of silver. If at the end of ten days there is no discharge, the patient may use an injection of permanganate of potash, 2 grains to 16 ounces of water. He should begin by using it twice a day and continue to use it for two weeks or so. When permanganate of potash is used from the beginning instead of nitrate of silver, it is best to irrigate with a large amount of weak solution rather than with a little of a stronger one; 1 to 4000 is strong enough. A No. 6 English soft-rubber catheter attached to the nozzle of a douche-bottle is used. With the bottle at an elevation of not more than three feet the solution has not force enough to get back into the bladder, but flows

¹⁰ Boston Med. and Surg. Jour., Feb. 7, 1901.

forward very readily around the small catheter. A soluble lubricant should be used for the catheter. A quart of this solution as hot as can be borne comfortably should be allowed to flow in and out, and where possible it should be done twice a day. This should be kept up for ten days, and then the patient should take injections himself for ten days longer.

When it is impossible to see a patient as often as these two methods require, protargol is a safe injection to let him use himself. A $\frac{1}{2}$ -per-cent. solution is as strong as it is best to begin with, and, if there is any great amount of scalding, this should be diluted. An ordinary 2-drachm syringe should be used and the injection retained for at least three minutes. Ten minutes is better. This should be repeated three times a day for the first ten days, and then at longer intervals until a cure is effected.

With all three of these methods it is often necessary to give a mild astringent injection at the end to get rid of the final gluing together of the lips of the meatus in the morning. For this purpose the following prescription is useful: Sulphate of zinc, from 4 to 8 grains; fluid extract of hydrastis, $\frac{1}{2}$ ounce; and rose-water, up to 4 ounces.

If the patient presents himself only after the disease has been fully developed for several days, and there is a thick yellow discharge with scalding, painful erection, etc., there is no use in trying to abort the trouble. If an injection is used at all it should be very mild. It is usually safest to give no local treatment for a time, but rely on medicine. The citrate and acetate of potash are useful, mainly, in that they make a patient thirsty. The same results can be accomplished by making him drink

his digestion, at least 2 quarts a day should be drunk. Compound salol capsules are good, and should be taken after meals and before going to bed. Methylene-blue is also of some use. It is necessary to see that one gets methylene-blue, and not methyl-blue, as the latter has no effect. It is best given in capsules containing 1 grain of methylene-blue, 1 drop of oil of cassia, and 1 drop of oil of sandal-wood. Three capsules a day is usually as much as a patient can take, and at times the dose has to be reduced to 2 after forty-eight hours. The urine is green, and stains the clothing if allowed to come in contact with it.

As to diet, if one excepts peppery and spiced foods, there are few things which do harm. A simple diet is best. Nothing with any alcohol in it should be allowed, and ginger-ale is just as bad on account of the pepper in it.

Other things being equal, the quieter a person keeps, the better he will do. Bicycle- and horseback-riding should especially be avoided. Keeping the bowels open and a hot bath before going to bed lessen the tendency to chordee. All sexual excitement is bad for the patient. He should be told to handle the penis as little as possible, and not keep stripping it to see how much of a drop he can find. A suspensory bandage lessens the liability to epididymitis, and should be worn from the beginning of the trouble. If inflammation should occur, rest in bed and an ice-bag give the greatest relief.

In the treatment of acute and chronic gonorrhoea R. Kuttner¹¹ introduces into the urethra for a distance of 4 centimetres a Nélaton catheter, and from a syringe holding from 3 to 4 ounces of the irrigation fluid employed suddenly introduces forcibly a small quantity of the

¹¹ Berliner klin. Woch., Dec. 17 and 31, 1900.

fluid, and then he allows a cessation of the pressure, relaxation of the compression of the organ about the catheter, and the escape of the fluid from the urethra. This operation is repeated until the entire quantity in the syringe has been used.

Donald Kennedy¹² thinks, in the treatment of cases in which the structural changes have not taken place, irrigation will suffice. The best agent is potassium permanganate. In cases of infiltration, granular patches, and infected glands the dilators should be used. When the urethra is so sensitive that a dilator cannot be used, a flexible bougie should be introduced and allowed to remain three minutes. The urethra should then be irrigated with a hot solution of permanganate of potassium. This treatment should be repeated in three days and continued until the hyperæsthetic condition ceases. When the extreme sensitiveness has subsided, treatment by the dilators should be begun. At the first treatment the dilator should be left in the urethra three minutes. At the next séance the calibre can be advanced and two minutes added to the time. Every dilation is to be followed by an irrigation of permanganate of potassium 1-12,000 to 1-3000. If the disease is anterior, only that portion should be irrigated; if the bulbous and posterior portions are involved, the irrigation must be intravesical. At subsequent treatments the time is increased two minutes and the dilatation advanced until in some cases it will be necessary to leave the instrument forty-five minutes. From time to time the urethroscope should be used, and, if there are granular patches which resist treatment, they should be touched with silver-nitrate solution 60 grains to the ounce. Occasionally an infected gland will persist, and it be-

comes necessary to destroy it by Kollman's electrolytic needle. In cases of posterior urethritis the prostate should be massaged once a week.

In gonorrhœa in women W. L. Burrage¹³ considers that the treatment varies according to the structures which are attacked. In the more acute stages, when the parts are hypersensitive, douches and extreme cleanliness are to be advised by way of local treatment; in the chronic stages vaginitis is most successfully treated by cleansing the vagina with an antiseptic solution and packing it with cotton tampons soaked in medicated solutions, or with dry cotton dusted with an antiseptic or non-irritating powder. As a germicide protargol, in solutions of from 1 to 5 per cent., seems to be displacing nitrate of silver as a standard remedy, and has given better results than the many other salts of silver. Vaginal suppositories of protargol are useful and efficacious, also vaginal suppositories of ichthyol, as well as the use of the latter drug with glycerin on cotton packings.

In the treatment of chronic urethritis applications to the mucous membrane of the urethra through a small cystoscope of solutions of nitrate of silver, protargol, and ichthyol, and also the use of urethral suppositories of the same drugs, have given the best results. Stricture of the urethra is best treated by gradual dilatation with urethral sounds, although rapid dilatation, the patient being under ether, has often given satisfactory results. Skene's glands are treated by similar applications made with a fine-wire applicator wound with cotton, and in intractable disease of these glands it is necessary to lay them open into the lumen of the urethra.

¹² Colorado Med. Jour., Apr., 1901.

¹³ Boston Med. and Surg. Jour., Feb. 7, 1901.

The treatment of cystitis, endometritis, salpingitis, and proctitis due to the gonococcus does not differ from the treatment of these affections when caused by other bacteria.

The treatment of gonorrhœa should be persisted in until the disease is thoroughly eradicated.

In gonorrhœal cystitis in the female F. Bierhoff¹⁴ uses the following treatment: After preceding irrigation of the urethra with a 1/2-per-cent. protargol solution, about 15 cubic centimetres of this fluid are injected directly through the urethra (without a catheter) into the bladder, and allowed to remain there until the next urination. After cleansing the vulva and irrigating the vagina with the same solution, a gauze strip, saturated with a 5-per-cent. solution of protargol in glycerin and water is inserted into the vagina, filling this and being allowed to protrude therefrom and a part to rest between the labia. This strip may remain in place for twenty-four hours. Warm sitz-baths are given daily. In many cases no internal treatment whatever is employed, except regulation of the diet. The treatment is repeated daily.

When Cured.—In regard to the question as to when gonorrhœa is cured, Paul Thorndike¹⁵ says all acute cases should be freed from all traces of discharge, both that visible at the meatus and that showing as shreds in the urine, and should remain so free for a period of months, during which time the patient has lived his usual life, eating, drinking, and exercising as he will. In the chronic cases the *cause* of the discharge, whether it be a stricture already formed, granulating patches, areas untreated and uncured in the posterior urethra, involvement of the seminal vesicles, or any one or more of the many possible causes,

must be sought for by one competent to so search, and when found must be treated and cured. This can generally be done, but often takes a number of months for its accomplishment. Having been so accomplished, the patient must pass through a period of probation similar to the one mentioned above. There remain a few cases where the most rigid examination of the whole urethra, prostate, and seminal vesicles fails to reveal any lesion to account for the persistent drop or shred. In these cases efforts should be made to re-establish an acute inflammation by judicious local irritation with injections, and then a careful search for gonococci should be made in the discharge thus re-established. Should none be found after a number of examinations, the artificially produced inflammation is allowed to subside, which it should do in two to three days, and the remaining shred or drop be repeatedly and carefully examined for gonococci, preferably by another physician than yourself. If they are not found and the discharge is mucoid in character, the patient must probably be allowed to marry, but must still be told of the risks he runs (personally it is believed to be a slight one).

Boleslaw Lapowski¹⁶ states that in the vast majority of cases the physician, failing after repeated microscopical examinations to find the gonococcus in the purulent or mucous threads, pronounces the patient cured. It is far from being sufficient evidence when one, from negative microscopical examinations, even with the use of Gram's method, draws the conclusion of the absence of the gonococcus, for this one out of many

¹⁴ Med. News, Jan. 12, 1901.

¹⁵ Boston Med. and Surg. Jour., Feb. 7, 1901.

¹⁶ N. Y. Med. Jour., Apr. 13, 1901.

other reasons, that the gonococcus may be present in the threads, and Gram's method will not expose it in its classical form, and, owing to the changes of its form, it is usually taken for a diplococcus.

There is a stage in the life of the gonococcus when it is in a condition of involution, especially in chronic gonorrhoea. Such involution gonococci may linger in the tissues for years, and, owing to some favorable change in the tissues, suddenly develop a more active existence. Such involution gonococci are not decolorized by Gram's method, but grow on appropriate culture-media into full-sized gonococci. For the benefit of those who express doubts as to the existence of such forms of gonococci, it may be said that such a form, first described by Wassermann as found in artificial cultures, has been seen by Ghon and Schlagenhofer in a pocket of the mitral valve of the heart—a natural culture-tube—in a woman who had died from endocarditis gonorrhoeica. The bacteriological examination of the contents of the valvular pocket gave the gonococcus in pure culture.

Thus, only bacteriological examinations can be regarded as proof of the existence or absence of the gonococcus. Even with bacteriological examinations mistakes are possible, but with them one is at least doing all that it is possible to do in the present state of knowledge.

MALARIA.

Diagnosis.—G. Grixoni¹⁷ states that tests on 130 persons have demonstrated that the blood or the serum of a malarial patient will agglutinate the erythrocytes in the blood of a normal person or of a malarial or typhoid-fever patient or in any other infectious disease. Therefore, in doubtful cases of malaria, a drop of

blood or serum from the febrile patient mixed with a drop of blood from another person free from malaria, will differentiate the disease to the naked eye in ten minutes. This agglutinating power is specific of malaria and typhoid fever.

C. F. Craig¹⁸ is aware that a few authorities use stained preparations almost entirely for diagnosis, but it is a cumbersome and very unreliable practice. Where it is impossible to keep a specimen of blood fresh enough to look at under the microscope, the use of stained preparations is, of course, necessary; but, when it is possible to examine the blood fresh, it is always to be preferred, as it is infinitely more exact and satisfactory. Many cases have been seen in which the fresh blood showed numerous ring-forms of the aëstivo-autumnal parasites, yet in which smears taken at the same time and stained most carefully showed either none or at most a very few dimly colored parasites. There is also the danger of mistaking stained granular matter or debris lying upon the corpuscles for the small aëstivo-autumnal parasites in the smears, and this mistake can be very easily made by one who is unaccustomed to examining such preparations. The only strictly scientific way of diagnosing the various forms of the malarial parasites is by the microscopical examination of the fresh blood, and most specimens of blood will keep in a suitable condition for examination, under ordinary circumstances, for six, eight, or even a greater number of hours.

Herbert Old¹⁹ employs the following technic in staining malarial blood: In his medical bag there are always cover-glasses and a large Hagedorn needle.

¹⁷ *Gazzetta degli Ospedali*, May 12, 1901.

¹⁸ *Med. News*, Nov. 3, 1900.

¹⁹ *Ibid.*, Mar. 2, 1901.

The lower tip of the ear is cleansed with alcohol, which is allowed to dry thoroughly before the ear is punctured; the cover-glasses are washed with alcohol just before use, wiped dry, and protected from dust; absorbent cotton wrapped around the non-sulphur end of a match and soaked in alcohol gives a sufficient alcohol-flame for sterilizing the needle; the puncture is made sufficiently deep to obtain the blood without having to squeeze the ear; the first drop is wiped off, and the second one caught on one of the cover-glasses; the two cover-glasses are placed in contact just long enough for the blood to spread, then drawn rapidly apart. The spreads are now allowed to dry and then placed in a small tin box, there to remain until stained. In order to fix the blood before staining, about 1 teaspoonful of a 40-per-cent. solution of formaldehyde is placed in the bottom of an ordinary cheese-dish; the spreads of blood are placed in a small butter-plate; the plate is then set in the dish; the cover is placed over the dish, and the spreads are thus exposed to the formaldehyde-gas for from fifteen to thirty minutes. The spreads are now stained first with a 1-per-cent. aqueous solution of eosin, washed, and finally stained for from one-half to one minute with a 1-per-cent. aqueous solution of methylene-blue. Before mounting the spread on a slide it is best to look at it with a low lens of the microscope to see if it is stained blue enough, which can readily be ascertained by noticing the nuclei of the white corpuscles. After the spread has been mounted it is looked at with the $\frac{1}{12}$ oil-immersion lens.

W. B. Leishman²⁰ finds Romanowsky's stain in malaria strikingly superior to other and better-known methods.

A series of cover-glasses, well polished

and perfectly free from grease, are laid on a clean sheet of paper close to the patient, and blood-films prepared as follows: Care should be taken that the cover-glasses are never subsequently handled except with a pair of forceps, as the slightest trace of moisture from the fingers will endanger the result. Any method which insures a thin, even film may be used, but perhaps the easiest is the following: A few strips of very thin tissue-paper—cigarette-paper answers admirably—are cut into rectangular slips 2 inches by $\frac{1}{2}$ inch. A drop of blood the size of a pin's head is expressed from a needle prick in the patient's finger and lightly touched by the end of one of the paper slips. The edge of the paper bearing the droplet of blood is then quickly applied to a cover-glass and when the drop has spread itself out between the glass and the paper the latter is gently and lightly drawn across its surface. This will be found to leave a very thin and evenly-distributed film. A series of films having been prepared in this way are allowed to dry in the air, or the drying may, with benefit, be hastened by gentle warming.

The films are now immersed for from two to five minutes in a mixture of equal parts of ether and absolute alcohol, or in absolute alcohol alone for ten minutes. After removing the film from the fixing solution, it should be washed well in water and allowed to dry in the air before staining.

The effects produced by Romanowsky's staining are due to a red dye, which is extracted from alkaline solutions of certain kinds of methylene-blue when to such a solution is added a small quantity of a very weak watery solution of eosin, and the evidences of the advent of this

²⁰ Brit. Med. Jour., Mar. 16, 1901.

red dye are found in the appearance on the surface of the mixture of a brilliant metallic scum, a certain amount of precipitation, and the staining of the walls of the containing glass vessel, or of any glass object dipped in the mixture, of a definitely red tint. Only a few varieties of methylene-blue will produce this red dye in sufficient quantities. The solutions personally used are obtained from the firm of Dr. G. Grüber & Co. (Leipzig). Should these particular dyes be unprocurable, the proper proportion of eosin to be added to the solution of methylene-blue must be determined by experiment.

Solution A.—"Medicinal" methylene-blue. A 1-per-cent. solution of this is made in distilled water, and then rendered alkaline by the addition of 0.5 per cent. of sodium carbonate. It is necessary before use that this solution should be heated for some time, and this may be conveniently done by leaving it in a tropical sun for two days or in a warm room for a week. To prevent the growth of molds 0.25 per cent. of formalin may be added. It is recommended that after heating it should be allowed to stand for a week or two before use.

Solution B.—"Eosin extra B.A." A 1 to 1000 solution in distilled water.

These concentrated stock solutions A and B, preserved in stoppered glass bottles, will keep indefinitely. When fixed blood-films are to be stained, a portion of each of these solutions A and B is further diluted with distilled water in the proportion of 1 to 25, and kept ready in a couple of graduated glasses. An equal volume of each diluted solution is now poured on to the cover-glass in such a way that they come in contact with the film at the moment of mixing. A convenient way of carrying this out is to pour a measured quantity of each—say,

2 cubic centimetres—into two watch-glasses, the cover-glass being placed, film uppermost, in a third empty watch-glass. The glasses containing the diluted A and B solutions are then picked up in either hand and their contents poured simultaneously upon the film. To insure intimate mixture of the two solutions, the cover-glass is now picked up with a pair of forceps and used to stir the mixture; it is then replaced, film downward, at the bottom of the watch-glass, and allowed to stain at room temperature for from one-half to one hour.

At the end of half an hour the film is removed from the stain and examined in water under a power of $\frac{1}{4}$, or $\frac{1}{6}$ inch, with a view to seeing whether the red dye has acted sufficiently intensely. The index to this is found first in the leucocytes, whose nuclei should appear sharply defined and stained an intense ruby-red color; secondly, in the blood-plates being stained sharply and of the same deep tint as the nuclei of the leucocytes. If instead of this deep-red color the nuclei and blood-plates are only purple or deep violet, the staining is insufficient, and the films must be replaced in the solution for a short time.

Several methods of decolorization have been advocated. First, rapid method: the film after washing in water is rinsed in absolute alcohol for two or three seconds, then immediately transferred to water and all traces of alcohol removed. Second, slow method: in this water alone is used and the decolorization may be carried out either by holding the film under a tap of running water for some time or by leaving it to soak in water for from one-half to one hour. In either case the extent of the decolorization is controlled by examination under the microscope from time to time. The appearance of the film when it is ready to mount

should be as follows: The red cells are transparent and nearly colorless, or perhaps slightly tinged green or pink. The polynuclear leucocytes have their nuclei stained ruby-red or magenta, the extranuclear portion being colorless or containing a few reddish granules. The nuclei of the mononuclear leucocytes and lymphocytes are of the same color as those of the polynuclears, and their margins are very clearly defined, while the extranuclear portion is stained a beautiful eau-de-nil, or pale-blue, color. The blood-plates are ruby-red, with definite, involuted margins.

The films are now dried in the air or by gentle heat, and mounted for examination. Canada balsam has not proved a very good mounting medium, as it detracts from and alters to a considerable extent the brightness of the color described above. However, either it or cedar-oil may be used for the purpose.

Morris Manges²¹ says that an erroneous notion that is being eradicated is that children rarely suffer from malaria. Koch has found that in South Africa the children are quite frequently attacked, and this has been Ross's experience in India. Malaria used to be considered a curiosity in children, but it is much more frequent than has been thought.

Etiology.—C. R. Grandy²² gives a modification of the mosquito theory which appeals to him strongly. That in a certain number of cases malarial fever is directly transferred from man to man by the Anopheles is proved beyond question. But it is personally believed to be the fact in only a very limited number of cases. How, then, can the great majority of cases of fever be accounted for? The potency of the Anopheles is still believed in, but it is believed that they can, and do, obtain the organisms from other sources than direct from the human

blood. This genus injects the young malarial organisms from its parotid gland into the blood of the man upon whom it is feeding. Is it not likely that it, when feeding on other things than human blood, which seems to be more of a delicacy than a staple article of diet with the mosquito tribe, should also inject the parasites into whatever it is eating? Other uninfected Anopheles may take in the parasites directly from this food or water; or the plasmodia, in the form in which one finds them in the parotid glands, may be able to live in water or damp soil as other sporozoa do, and later on they may be taken up by other Anopheles and be inoculated by them into man. It is also possible that the plasmodia may pass into the water from the bodies of the Anopheles, which have died in the water after depositing their eggs, and may be taken up in feeding by other mosquitoes.

All the arguments in favor of the mosquito theory apply equally well to this modification, but the modification explains some points to which the original does not thoroughly apply.

Differences Between Culex and Anopheles.—In doing work on the mosquito-malaria theory, with special reference to conditions around New York, W. N. Berkeley²³ finds that a good working rule to decide the structural differences between Culex and Anopheles is that Anopheles has palpi as long as the proboscis, and (what is perfectly true for the local species) spotted wings. As regards the angle made by the body of the resting insect with the wall, a degree of inclination is generally present, but not, in species studied, so marked as has been

²¹ Med. News, Feb. 23, 1901.

²² *Ibid.*, Dec. 8, 1900.

²³ Med. Record, Jan. 26, 1901.

claimed. When resting on a perpendicular wall *Anopheles* will often incline its body at an angle of 15° or 20° with the wall, but more than 45° is rare, particularly with *A. quadrimaculatus*. *A. punctipennis* hangs, as observed, at a somewhat greater angle than *A. quadrimaculatus*; but, unfortunately, certain of the *Culex* species, particularly when well fed and hanging from ceilings, sometimes assume the same posture, and relying on this sign alone *Culex* has not infrequently been caught for *Anopheles*, the error being discovered only when a bright enough light was obtained to see the palpi or wings.

Anopheles was never found without *Culex*, oftenest *C. pungens*; rarely *C. tæniorhyncus*.

Hibernation of Mosquitoes.—E. A. O. Travers²⁴ says that M. J. Wright states:—

"One sees it generally stated and accepted that the adult mosquito is able to survive the rigors of winter in a state of hibernation. . . . As far as I am aware, there is no actual proof of this."

It may be of interest to know that a large number of mosquitoes—*Culex pipiens*—were recently found in a state of hibernation in a village near Bedford, and were brought to the London School of Tropical Medicine, where several of them were dissected by the students. These mosquitoes were discovered in a damp cellar during the last week in February; about 50 of them were brought to the school, and on March 18th about 700 were taken from the same cellar.

The walls of the cellar were white, with the exception of a small patch of wood-work, all the mosquitoes being found on this patch.

These insects were kept in the laboratory of the school at the ordinary temperature of the room, and were fairly

lively, although they would not bite, and seldom fed on fruit placed in their cage. They were all females, and as none of them laid any eggs, or showed any further development when left at room-temperature for more than a month, it is probable that they were not fecundated.

H. E. Annett and J. Everett Dutton²⁵ note that it is a remarkable feature that larvæ, both *Culex* and *Anopheles*, are able to withstand a temperature of about 4° C. for a period of two weeks. Throughout the winter session a supply of *Culex* adults has been obtainable for class purposes at the Liverpool School of Tropical Medicine.

On February 11th, during a period of very cold weather, four *Anopheles* were caught at a farm some 13 miles from Liverpool. A large number of *Culex* (four species) were also captured here. The mosquitoes were found in the following situations: Cellar, dairy, cheese-room, pantries, lumber-rooms, and in some disused bedrooms at the top of the house; also in the wash-house and whey-tankhouse abutting on the house, and in the coach-house, tool-sheds, and privies at some distance away. No mosquitoes could be found in the stables, cow-sheds, pig-sties, hay-lofts, and hen-pens. Many of the farm-houses of this district of Cheshire are old, and have no damp-proof courses. In the disused cellars the walls and the beams supporting the ground floor were soaking with moisture, and small ferns grew in the crevices of the tiled floor, and patches of moss and mold on the surface of the walls. Here thousands of mosquitoes, chiefly *Culex*, blackened the walls and rafters. In the dairies they were found

²⁴ Brit. Med. Jour., May 4, 1901.

²⁵ *Ibid.*, Apr. 27, 1901.

on the damp areas, resting on and in the crevices of the plaster; very few were seen on the drier parts. Similarly, in the other places on the damp portions many mosquitoes were observed, especially behind boxes, slates, boards, barrels, and other articles resting against the wall.

The majority of the mosquitoes of the genus *Culex* were found on the parts of the damp walls near the ground, while *Anopheles* were generally caught near the ceiling.

During the coldest weather the attitude of both *Culex* and *Anopheles* was peculiar and characteristic. The under surface of the thorax and abdomen was applied closely to the walls, while the legs were stretched straight out, almost at right angles to the body. The absence of the characteristic attitude of *Anopheles* (at an angle to the surface), and the fact that both *Culex* and *Anopheles* assumed the peculiar outstretched attitude, made it difficult at first sight to distinguish specimens of the two genera, especially since among the *Culex* was a species having wings spotted somewhat similarly to *Anopheles*; but on close inspection, even in the positions described, the characteristic angle, seen in side-view, between the direction of the head and thorax, and of the abdomen of *Culex*, served to distinguish the genera. In this peculiar attitude the mosquitoes were very difficult to rouse.

On very cold days this attitude was observed even in the cages in which the mosquitoes had been kept. On warmer days at the farms, and on taking the cages of mosquitoes into a warm room, they reassumed their ordinary attitudes.

There can be no doubt that mosquitoes of both genera "hibernate" during the winter months in England.

Among the numbers of mosquitoes of

both genera collected, a male was never found; and moreover all the females with which a number of experiments were carried on, or which were dissected, had been fertilized (proved by the presence of spermatozoa in the spermathecae, or by the hatching out of larvæ from deposited eggs).

If these mosquitoes be kept in a dry cage they die in a few days, whereas they can be kept probably for months in a damp cage in the cold, during which time they preserve what may be called the "hibernating" attitude. On introducing them into a warm room they quickly become active, and both *Anopheles* and some species of *Culex* eagerly feed on blood on inserting the hand into the cage darkened by covering with a cloth. They then feed eagerly every day for four or five days, but subsequently only occasionally. Eggs were laid on the fifth, sixth, seventh, and eighth days, which hatched out in twenty-four or forty-eight hours. Many of the *Anopheles* died after depositing a batch of eggs.

Having once fed on blood, it is necessary to continue the feedings at least every other day, otherwise the ovaries cease to develop, and the insects die, though water is supplied.

Prophylaxis. — W. N. Berkely²⁶ cites, as a fair example of what may be locally accomplished, a small outbreak of malaria in a suburban New York town last summer. In August he was requested by one of the resident physicians to go there, examine the ground, and advise means of prevention.

The following practical measures were recommended: 1. Extermination, as far as possible, by a party of men sent out for the purpose, of all *Anopheles* found

²⁶ Med. Record, Jan. 26, 1901.

in houses and systematic introduction of screens in windows and doors. 2. Filling in of the smaller breeding-places, and drainage of a large pond. 3. Continuous seclusion of every malarial patient by netting or otherwise from the bite of mosquitoes while he had germs in the capillary blood: if possible, the sending away of the cachectic cases till danger of relapse was certainly passed.

These measures were intelligently put into operation at once; and the results were prompt and gratifying. Not a single new local case of malaria developed. *Anopheles* disappeared promptly from houses where it had been previously a night-terror, and *Culex* was greatly diminished in numbers.

Inside the Greater City of New York the Health Department should take the following official steps:—

1. Require malarial cases to be reported, as scarlet fever and diphtheria are now.

2. Send an inspector to every infected house, who shall instruct the people to kill all the *Anopheles* in the house, to provide the windows and doors with screens, to isolate the patient with particular care from mosquitoes, and to cause all the standing water in the vicinity to be drained or heavily petrolled. Rigid treatment with quinine should be insisted on, and the drug furnished gratis to those unable to pay, as diphtheria antitoxin is now supplied.

In a summer or two it would be possible by these measures to reduce the number of local cases by more than 90 per cent.

SYPHILIS.

Diagnosis.—During the last few years several cases of secondary syphilis of the throat have come under the observation of A. A. Scot Skirving,²⁷ in which itchi-

ness of the fauces has been present. This was not a mere tickling, but a definite itchiness in every way comparable to the ordinary feeling experienced in the skin, and accompanied by a similar desire for counter-irritation by scratching. In two cases this symptom was most marked. In both cases the itchiness had appeared very shortly after the onset of the sore throat, namely: about eight weeks after the appearance of the chancre.

That itchiness should occasionally be a fairly marked symptom in syphilitic affections of the mucous membrane is the more remarkable, since, with the exception of small papular syphilides, specific cutaneous eruptions seldom itch much,—often, indeed, not at all.

G. Babinski and Charpentier²⁸ stated two years ago that the absence of the pupil reflex to light, if permanent and unaccompanied by any change in the eyeball or optic nerve, or paralysis of the third pair, is almost pathognomonic of hereditary or acquired syphilis. Experience since has convinced them that the absence of the pupil reflex under these circumstances may be the only sign of an organic affection of the nervous system, and that patients thus affected are liable to be attacked by tabes, general paralysis, or confirmed cerebro-spinal syphilis.

Prognosis.—Prince A. Morrow²⁹ states that it is probable that after the first twelve months of syphilis its contagiousness practically disappears. This is a rule, however, which admits of many exceptions. In any given case no assurance can be given until a longer period than twelve months has elapsed.

²⁷ Brit. Med. Jour., May 4, 1901.

²⁸ Bull. de la Soc. des Hôp. de Paris, May 23, 1901.

²⁹ Med. News, Mar. 23, 1901.

Prophylaxis.—A. Fournier³⁰ says a society has been formed at Paris for "Sanitary and Moral Prophylaxis," composed of physicians, businessmen, officials, and others, the aim being an actual campaign against syphilis. Many practitioners now forbid marriage under four to six years of treatment. The new society aims to have a large representative membership from all classes, and to utilize all measures in the campaign against syphilis and its great procuress, prostitution, education of the public in the dangers of venereal diseases, official regulation, medical prophylaxis by public evening dispensaries with private consultations and circulars of instruction and warning, besides measures of a religious and moral order.

Among the measures which the league is advocating is training of girls to some trade, the closing of saloons with private rooms, opening the liberal careers more freely to women, warning young girls of the dangers that threaten them, fixing "paternal responsibility" and legal penalties for damages from venereal contamination. The public should be warned of the dangers of extragenital contagion.

Prince A. Morrow³¹ says that syphilis is worse than any foreign pest, although so much care is taken and so much money is spent on sanitary precautions to prevent the entrance of these diseases, while syphilis is allowed to go absolutely unguarded. It has been calculated that one-eighth of all the patients in hospitals are suffering from venereal disease or its consequences. Syphilis is rather an urban, than a rural, disease.

Treatment.—C. A. Parker³² thinks that in all forms of tertiary syphilis of the pharynx the combination of iodide of potassium internally and mercurial inunction is especially useful and should be employed at the earliest possible op-

portunity. In tertiary ulceration a good deal may be done locally to arrest the disease and to promote healing. The surface of the ulcer should be carefully cleansed and insufflated with iodoform, or in some cases with heated calomel. In cases in which there is much pain the insufflation of orthoform will be attended with results most grateful to the patient. One insufflation will often relieve pain for as long as twenty-four hours. Both nitrate of silver and chromic acid are also useful applications. The best method of applying either of them is to fuse a little of the pure drug on to a probe, and having cleansed the surface of the ulcer to paint it on. Last, the patient may be given for use at home a gargle composed as follows: Chlorate of potash, 10 grains; lotio nigra, 1½ ounce; water, to 1 ounce. This is most useful for the relief of pain and for cleansing the throat. As regards the treatment of adhesions, the less the operative interference, the better for the patient. It is never wise to resort to operation unless there are very strong reasons for trying to relieve the obstruction, such as rapidly increasing deafness, constant and intense earache, or great discomfort to the patient arising from the nasal stenosis. Should operation be considered absolutely necessary, every conceivable device will have to be tried for maintaining a larger opening. From observation on a great number of cases, it is most surprising how great an amount of contraction may exist and yet cause comparatively little discomfort. When the opening is so small as to cause symptoms, it is generally sufficient to pass dilating instruments regularly and in increasing sizes in order to render the

³⁰ *La Semaine Médicale*, May 22, 1901.

³¹ *Med. News*, Mar. 23, 1901.

³² *Lancet*, Jan. 26, 1901.

patient quite comfortable, and this the patient can be easily taught to carry out for himself.

E. Moore³³ gives the results of treatment of 30 cases of syphilis by the injection of serum derived from patients who have already suffered from syphilis, and have arrived at the tertiary stage. The serum was obtained by means of cantharidin plasters. Doses varied from 10 to 40 cubic centimetres, and were injected every third or fourth day for one or two months. Cases of refractory syphilis showed themselves quickly benefited, and such benefit has in most cases appeared to be much more permanent than that afforded by even prolonged treat-

ment by mercury and iodide of potassium.

Syphilitic sores yielded rapidly to the local application of the serum in the form of compresses.

The best serum is to be obtained from robust persons in the later stages of syphilis, and those patients who have been treated with the serum yield in turn better serum than those who have been treated in the ordinary way with mercury. No experiments have been tried in cases either of tertiary or congenital syphilis.

³³ Dermat. Zeitschrift, Apr., 1901.

Cyclopædia of Current literature.

ABDOMINAL SURGERY, BISECTION IN.

The following are the methods of abdominal bisection:—

1. Vertical section of anterior and posterior walls into cervix or into vaginal vault in pelvic inflammatory diseases and in carcinoma of the cervix.
2. Vertical section in cases of fibroid tumors wedged in the pelvis, or held down by bilateral pelvic inflammatory diseases; also in cases of large fibroid tumors filling the lower abdomen.
3. Section of the anterior wall of the uterus followed by division of the posterior wall where the fundus is adherent.
4. Transverse division of the cervix followed by vertical section of the uterus from below upward in cases of dense adhesions of the fundus and the posterior surface.
5. Bisection of intraligamentary myomata; bisection of intraligamentary cysts; bisection of adherent ovarian cysts. How-

ard A. Kelly (St. Paul Med. Jour., June, 1901).

ACNE.

Treatment.—Ichthyol is particularly beneficial both in acne vulgaris and acne rosacea. In the former strong external applications can be borne, but in the latter much weaker strengths must be used. The best results are obtained when external and internal treatments are combined, and in some cases of acne rosacea in which the skin is too thin and irritable to bear even weak solutions the internal administration of ichthyol alone, with steaming, will suffice to effect a cure. The general plan of treatment is to begin with 5 grains of ichthyol thrice daily after food, increasing to 10 grains. Every night and morning the face is steamed for fifteen minutes, and then washed with ichthyol soap made into a lather and allowed to dry on, which is

then gently washed off with water. After each washing, if it can be borne, ichthyol salve (often combined with ammoniated mercury) is applied. In acne vulgaris, after steaming, strong sulphur and ichthyol soap is used, with brisk rubbing by means of a flesh-glove. The diet is regulated. Ichthyol itself relieves mild cases of constipation, but, if it does not, a compound pill of iridin and euonymin or podophyllin may be given. Alexander Brownlie (*N. Y. Lancet*, May, 1901).

ALCOHOL IN ACUTE INFECTIOUS DISEASES OF CHILDREN.

While alcohol should not be given in every case of fever, certain definite indications exist which imperatively call for its use:—

1. Persistence of a high temperature.
2. Persistence of a rapid, feeble, irregular, dicrotic pulse, whether associated with high, low, or irregular temperature.
3. Persistence of marked prostration.

If, however, after giving alcohol the pulse becomes quicker and more irregular, the skin hotter and dryer, tongue browner and dryer, breathing more shallow and hollow, it means that the alcohol is doing no good, even if it is doing no harm; it means that the little patient has passed from the stage of depression in which alcohol is of decided utility, to the stage of exhaustion of the vital powers, in which it is of no value; nor is any other remedy, for that matter. Under such circumstances alcohol had best be discontinued. Depression of vital powers, no matter how alarming, can be successfully combated by alcohol in conjunction with other powerful and quickly acting stimulants. Exhaustion of the vital powers, whether in old age or infancy, means death. A. E. Bieser (*Pediatrics*, Apr. 1, 1901).

ANGINA LUDOVICI.

Symptoms.—The symptoms are marked from the onset of the disease. They develop very rapidly and are of the greatest severity. Frequently, in a few hours after the earliest manifestation of the disease, a hard swelling will be found between the arch of the lower jaw and the hyoid bone. The swelling spreads rapidly, soon involving the neck and face in a hard, dark-red, brawny induration. Respiration is soon impeded by involvement of the deep connective tissue of the neck. The pharynx and larynx become involved, and attacks of acute dyspnoea, with cyanosis, supervene. The swelling may spread downward to the anterior mediastinum and on to the chest-wall. Inspection of the mouth, although unsatisfactory, due to fixation of the jaw, will disclose the sublingual tissue to be so cedematous as to push the tongue against the roof of the mouth. In the early stage the swelling is unilateral, but soon both sides become involved, and deglutition becomes difficult or impossible. Supervening the local condition a marked general sepsis occurs. G. G. Ross (*Annals of Surg.*, June, 1901).

BLOOD IN DISEASE, THERAPEUTIC INDICATIONS PRESENTED BY.

Departures from health do not always conform to clinical types; thus, it is not necessary to have all the characters of Graves's disease present in early thyroid disease; in every case of deficient thyroid secretion some disturbance of health will be doubtless produced of marked character. For instance, many cases of neurasthenia are believed to have their true explanation in this deficient function of the thyroid, and such cases are greatly benefited by the administration of the thyroid extract. In a similar way other patients may have a disturbance

of the adrenal function, without typical symptoms of Addison's disease, but with other clinical manifestations, which improve under the same kind of treatment. In obscure conditions of disease good results generally follow attempts to correct or aid the normal metabolism of the body. Very important in this connection is the condition of the blood. The increase or diminution of red corpuscles and of hæmoglobin, of the leucocytes, or lymphocytes, may be accompanied by evidences of disturbance of function. Alterations of the density of the blood-plasma in its results to osmosis are significant, also, of the total quantity and the distribution of blood in the body. Vasomotor ataxia plays a very important part in many functional disorders, notably in neurotics and neurasthenics and also in hysteria. In great sudden diminution of red blood-cells from hæmorrhage, or in malignant infections, the patients die, suddenly, with symptoms of acute anæmia. To prevent this, the administration of iron is advised in acute infections, especially in typhoid fever, the tincture of the chloride being especially applicable, as it is in erysipelas and in diphtheria. O. T. Osborne (Phila. Med. Jour., June 22, 1901).

CARBOLIC ACID AS AN INTERNAL REMEDY.

Since about June, 1899, besides the 1- and 2-per-cent. solutions of carbolic acid which are personally continued in giving infants under two years of age, a 3- and 5-per-cent. solution in drachm doses has been employed every two hours for older children, and dessert and table-spoonful doses of the 5-per-cent. solution every two hours for adults. With the exception of an idiosyncrasy manifesting itself in vomiting from a peculiar susceptibility to gastric irritation, carbolic

acid is a perfectly harmless remedy when diluted and taken in doses of not more than 12 grains every two hours. Occasionally a slight dizziness of a temporary nature is experienced soon after taking the remedy.

The internal employment of carbolic acid should always be in the form of solutions of different strengths. Thus, in ordering a 1-per-cent. solution made with the addition of 1 drachm of glycerin to every 2 ounces of water, 1 drachm of the solution would represent $\frac{3}{5}$ drop or grain of the acid; 1 drachm of a 2-per-cent. solution would represent $1\frac{1}{5}$ grains, or drops; a like quantity of a 3-per-cent. solution $1\frac{4}{5}$ grains, or drops; and of a 5-per-cent. solution 3 grains, or drops. Carbolic acid is without doubt the type of general internal antiseptic, and consequently is a rational remedy for the treatment of germ diseases. It is an entirely safe remedy when used judiciously; that is to say, in free dilution, and the dose graduated to the age of the patient. The internal administration of carbolic acid in solution by way of the stomach is decidedly safer than in the form of enema, or as a local application, even when weak solutions are employed. So far as can be judged, there are no reactionary manifestations nor cumulative effects. It gives good, speedy, and permanent results, even under the most unfavorable conditions. S. Henry Dessau (Therap. Monthly, May, 1901).

CARDIAC HYDROTHORAX, RIGHT-SIDED.

Though most authors state without reservation that inflammatory pleural effusion is distinguishable from hydrothorax by its unilateral character, the preliminary symptoms and the fever, some, as Leube, Pepper, and Osler, have

very properly insisted that hydrothorax may be unilateral and unattended by external œdema; and, on the other hand, inflammatory pleural effusion may be latent,—that is, unaccompanied by the usual symptoms. A knowledge, then, of the possibility of hydrothorax of this character is of clinical importance, though, even with the full recognition of this possibility, difficulty may occasionally arise in determining whether an effusion is dropsical or inflammatory. In some cases a unilateral hydrothorax is chronic in character, and the fluid after repeated tapping increases in specific gravity. In such instances it may be that a secondary inflammatory exudation has been added to the dropsical effusion. Alfred Stengel (Univ. of Penna. Med. Bull., June, 1901).

DELIRIUM TREMENS.

Treatment.—The intravenous infusion of saline solution in delirium tremens accomplishes the following things: It increases the amount of the circulating medium in which the toxic materials are dissolved, thereby diluting the poison and bathing the nerve-centres with a more attenuated solution of the same. The amount of circulating fluid is increased above the normal; so that the excretion of fluids through all the fluid-excreting channels is increased, thereby carrying off in solution much of the contained toxins. The action of the heart is improved by the filling of the relaxed vessels. These suffice to restore the physiological equilibrium and turn the balance in favor of recovery. J. P. Warbasse (Med. News, Mar. 2, 1901).

DYSENTERY.

Treatment.—Sulphur successfully used in the treatment of dysentery. Twenty grains of sublimed sulphur are combined

with 5 grains of Dover's powder to be given four-hourly. In all of the cases that have been treated with sulphur the recovery has been rapid and the patient has seemed to derive relief more speedily from his pain and straining than with other methods of treatment. The cure with sulphur seems to be more certain and stable, as chronic conditions and relapses have not occurred. Blood and mucus are easily stopped and the motions quickly become fecal. In some cases the number of motions per diem did not at once diminish, but the pain and straining were lessened and the character of the motions became more fecal and contained little or no blood. As soon as the diarrhœa becomes less it is advisable to give the powders less frequently. G. E. Richmond (Lancet, June 15, 1901).

EPILEPSY, PSYCHICAL.

It may be concluded (*a*) that the psychoses of epilepsy have very definite and immediate associations with other manifestations of the disease; (*b*) that the plea of irresponsibility for criminal acts alleged to have been committed while an individual was suffering from epileptic mental alienation should be considered invalid, unless other and irrefragable manifestations of the disease can be adduced; (*c*) that vague and ill-defined convulsions, which date back to infancy or early childhood, do not constitute such other manifestations. J. W. Courtney (Med. News, June 22, 1901).

FEVER OF INFANTS.

Treatment.—The sheet pack is of value. In order to prevent shock, it is better, after the patient's clothing has been removed, to wrap it in a sheet dipped in warm water. This is to be carefully and smoothly wrapped about the child. Over this a second sheet

wrung out of cold water is to be applied. After the application of the second sheet, gentle friction with the hand, to prevent capillary engorgement, is indicated. In the application of this treatment two symptoms should be constantly kept in mind. One is the character of the breathing, and the other is the tendency to cyanosis. Should the breathing become irregular, or the lips blue, during the application of this treatment, the child is to be removed from the pack and placed between warm blankets. When the outer sheet becomes slightly warm, cool water can be poured, or, better still, rubbed over by means of a sponge. The important things to be remembered are the constant rubbing to keep up the cutaneous circulation and the constant addition of cold water. The application of this treatment will usually require from 10 to 15 minutes. At the end of this time the child is to be rubbed until the skin is dry and has a good, healthy glow. It is then to be placed in a warm bed. The repetition of this treatment will depend upon the recurrence of fever and its influence upon the patient. In cases where the fever has been complicated by convulsions, it is always best after the child has been placed in bed to apply cold cloths to the head, or to use a water-bag for a pillow, and at the same time to apply heat in the form of hot-water bottles or bags to the feet. H. M. McClanahan (Canada Med. Record, Feb., 1901).

GLUTOID CAPSULES.

Glutoid capsules are gelatin capsules treated with formaldehyde and thereby rendered resistant to the action of the gastric juice, but still amenable to that of the pancreatic juice. Peptic digestion after a time destroys the capsule, usually in 2.25 hours; while the pancreatic

GOUTINESS.

solutions act in 2.2 hours. The capsules are of value as a test for motility of the stomach, and for the activity of the pancreas. Personally iodoform was used in the capsules and the saliva was tested for iodine. The reaction is obtained normally in from 3 1/2 to 5 hours after the administration of the capsule. If the reaction occurs later than 7 or 8 hours after the administration of the capsule, the causes may be various: (1) the capsule may be retained in the stomach; (2) the pancreatic function may be inadequate. If, for any reason, the contents of the capsule should escape into the stomach, the reaction would be obtained too early. To guard against this, the glutoid test should be combined with evacuation of the stomach; if the capsule has opened, the contents will have an iodoform odor. Fromme (Münchener med. Woch., Apr. 9, 1901).

GOUTINESS.

Apart from individual peculiarities which are common in the gouty, the safest diet for these patients is the simplest diet. One must study individual dietetic capacities of the patients and adapt the diet to them.

A vegetarian diet may suit some, but it has not fallen to personal lot to meet such cases. The most troublesome gouty headaches have been seen to disappear and a condition of greatly improved health result from an exclusive, or nearly exclusive, diet of pounded meat with liberal draughts of hot water. The success of this treatment in such cases is plain. The pounded lean meat is about the simplest that can be offered to the feeble digestive organs, and physiologists state that "proteid food increases the quantity of bile secreted," and the large draughts of hot water flush the excretory ducts both of liver and kidneys. Ex-

tremely simple food, limited in amount, meaning, as it does, digestive ease, means also freedom from goutiness.

There is much also in the quality and cooking of the food; often more than in the kind of food. The difference in the wholesomeness and digestibility of different specimens of bread is remarkable, and so it is with joints of meat, poultry, and fish.

This remark might be extended as to quality to wines also. A dry port, long in the wood, if it is freely diluted with hot water, is one of the best and safest wines for those gouty people who need some stimulant. Gouty women bear all wines badly. Many gouty patients can drink a small quantity of a well-matured, high quality wine, even champagne and port,—especially if diluted with water,—who would be made ill by a single glass of common claret. The more diuretic the effect of the wines proves to be, the more suitable it is to the particular case.

There seems to exist a general impression that the gouty person is one who does not take an adequate amount of physical exercise and that he must be ordered to take more. That is not personal experience. The gouty patients seen have, in the majority of instances, been extremely active and energetic people, and it is often difficult to get them to take sufficient rest. This excess of muscular activity constantly leads them to take an excess of food, and then trouble arises because their excretory organs can hardly keep pace with the waste produced in the body; this is especially notable after middle age. I. Burney Yeo (*Brit. Med. Jour.*, June 15, 1901).

HERNIA, DIAPHRAGMATIC.

Diagnosis.—Pneumothorax, the affection with which diaphragmatic hernia is likely to be confounded, results from

pulmonary tuberculosis in 90 per cent. of all cases and in probably all of these is speedily followed by effusion of serum or pus into the pleural sac. The affection develops without the history of an injury. In the remaining 10 per cent. nearly all result from traumatism, and in most of these inflammation of the pleura speedily follows, with effusion of fluid, though in a very few there may be no infection and the air may be absorbed without causing any effusion. In pneumothorax dyspnoea may come on suddenly or gradually, and one may often hear amphoric respiration, especially in expiration, which may be either intense or feeble and which disappears when fluid rises high enough to cover the opening into the air-passages. When fluid and air are present in the pleural cavity, metallic tinkling may often be heard during the respiratory acts, and distinct splashing sounds may be obtained by shaking the patient's body while the ear is applied to the chest. The heart is constantly crowded to the opposite side, where it remains without variation. Diaphragmatic hernia is congenital or occurs through congenital defects in about 38 per cent. of the cases that have been recorded, and in many of these it does not cause marked symptoms unless the hernia becomes strangulated. In about 60 per cent. of cases the affection is traumatic, and therefore the history is quite different from that of pneumothorax. The dyspnoea in hernia may come on suddenly and as suddenly subside, whereas that of pneumothorax is more continuous. E. Fletcher Ingals (*Jour. Amer. Med. Assoc.*, June 22, 1901).

HEROIN.

Heroin is less poisonous than morphine or cocaine. It may be given in

doses of $\frac{1}{12}$ to $\frac{1}{6}$ grain. It quiets cough, increases the depth of respiration, and in large doses often causes the patients to sleep. It does not apparently quiet pain. It is of value in tuberculosis of the larynx. Nasch (Münchener med. Woch., Mar. 19, 1901).

INFLUENZA.

Appearance of the Soft Palate in Epidemic Influenza.—Influenza can be diagnosed with ease and certainty by observing the peculiarity of appearance of the velum palati. It precedes the initial chill and fever by some days, and it persists when convalescence is apparently ended.

The phenomenon in question is seen upon the mucous membrane of the soft palate in the form of small convex projections of a pearly whiteness or transparency. Their size is that of a grain of sand. In number they are either few and confined to certain parts of the velum or its processes, or else abundantly scattered over the whole of its anterior surface. The certain parts exquisitely displaying them in their circumscribed form are (1) the base of the uvula; (2) the median raphe; (3) the lateral borders of the same; (4) the anterior surface of the palatoglossal fold about the upper border of the tonsil. A spatula rubbed over them gives a hard, rough sensation.

They are not distinguishable in obscure light, as in cloudy weather, nor discernible in any but a very bright artificial illumination, and are best seen in the sunlight, direct or diffused. They must not be confounded with minute drops of mucus or saliva often present. Sometimes they are entirely obscured by a tenacious secretion covering the surface. The use of a handkerchief or the handle of a spoon to remove this gives the peculiar rough feel and reveals the

little projections on the mucous membrane.

The color of the field to these bodies is flesh red in the otherwise normal individual; angry red from the consumption of alcohol or smoking tobacco; waxy white in the tuberculous, and in those subject to other wasting diseases. Sometimes punctate hæmorrhages complicate the picture, and in a single instance the color of the little enlargements are bright red.

Their existence is devoid of any subjective sensation. Louis Kolopinski (Med. News, June 1, 1901).

Streptococic Bronchitis in Influenza.

—In the study of streptococic bronchitis in influenza in 24 males and 30 females the symptoms were as follow: The onset of the disease always follows an attack of influenza, the primary attack being, in the majority of cases, of the respiratory type; in the minority, of the nervous or gastro-intestinal form. The symptoms of influenza disappear before the attack of bronchitis develops. Exceptions to this rule occasionally occur. If the patient be in the period of convalescence from influenza, the symptoms of that period will persist. The attack begins rather suddenly; so that in the most common form it will be fully developed in from twenty-four to forty-eight hours. The dominant symptom is the cough; always spasmodic, sometimes simulating whooping-cough, occurring at night as well as in the day-time, and annoying the patient exceedingly. On account of the violence of the cough the patients complain of headache, pain in the lower region of the thorax, and sometimes in the abdominal muscles. For the same reason vomiting occurs, and not infrequently the appearance of the face is the same as in whooping-cough. The attack of coughing is usually followed

by expectoration, the sputum varying from a mere serous through the various grades of mucous and purulent. The amount of coughing is disproportionate to the quantity of expectoration: so that in ten of the cases there was an admixture of blood; in six of these there was bloody mucus, in four unmixed pure blood,—in two of the latter apparently independent of the effort of coughing.

Physical examination shows evidences of bilateral bronchitis in the medium-sized tubes, in the moist stage. At times there are evidences of bronchitis of the larger tubes. The larynx is not implicated in the majority of cases: when the trachea can be seen it is not uncommon to find its mucous membrane injected. With these symptoms there is present an abnormality in body-temperature. It may be as low as 96° F. in the morning, and an evening temperature of from 99° to 100° F. or more (registered under the tongue or in the rectum). The pulse may be abnormally slow, normal, or rapid. The length of the attack varies. With proper treatment, begun at the proper time, the average duration commonly will not exceed two weeks. F. Forchheimer (Med. News, June 1, 1901).

IODOPHILIA.

Iodophilia designates a reaction which occurs in the blood under certain pathological conditions. The cases in which it gives aid in diagnosis are those of doubtful suppuration and doubtful pneumonia.

The technique consists in the staining and examination of a spontaneously dried blood-smear. The smear need not be stained at once, but will be good for use several weeks at least after making.

The solution is made up as follows: 3 parts of potassium iodide are dissolved in 100 parts of water. In this is dis-

solved 1 part of iodine. The resulting solution is thickened to a syrupy consistency by the addition of lumps of gum arabic and occasional shaking until they are dissolved. The blood-smear is mounted in a drop of this syrup and a bit of filter-paper placed at an edge of the cover-glass to absorb the excess of fluid. The specimen is then ready for examination by an oil-immersion lens. When blood is treated in this way the lymphocytes and the eosinophiles are not affected by the stain. In normal blood the polymorphonuclear neutrophils are either unaffected or their protoplasm is tinged a faint pinkish or brownish color. Under some pathological conditions, however, the protoplasm of a certain proportion of the polymorphonuclear neutrophils takes on a reddish-brown coloration. The mode of coloration differs in different leucocytes; in some it is a diffuse stain; in some a granular net-work; while in others the color is confined to large or small refractive granules, varying in tint from a light pink to a dark red. Where one or more such leucocytes can be found in a search of a few minutes, one has the condition of "iodophilia."

Certain diseases must be eliminated from the diagnosis before one concludes that iodophilia implies the presence of pus or pneumonia. Hofbauer at Neusser's clinic in Vienna found that iodophilia occurred in certain grave blood diseases. In 18 cases of chlorosis he failed to find it. In 18 cases of secondary anemia he found it in 2, but one of these was complicated by pyothorax and the other by gonorrhœal adnexa, and its presence was probably due to these complications. But in really grave anæmias, as that associated with cancer of the stomach, severe chronic intoxications, etc., where the blood picture ap-

proached that of pernicious anaemia, he regularly found a greater or less number of iodophile leucocytes in the \dagger such cases he examined. In advanced pernicious anaemia and in leukaemia he also found it. Theodore Dunham (Boston Med. and Surg. Jour., June 13, 1901).

KIDNEY, MOVABLE.

Etiology.—The following conclusions regarding movable kidney are presented:—

1. The essential cause of movable kidney lies in a particular body-form.

2. The chief characteristics of this body-form are a marked contraction of the lower end of the middle zone of the body with a diminution in the capacity of this portion of the body-cavity.

3. This diminution in the capacity of the middle zone depresses the kidney so that the constricted outlet of the zone comes above the centre of the organ, and all acts, such as coughing, straining, lifting, flexions of the body, etc., which tend to adduct the lower ribs press on the upper pole of the kidney and crowd it still farther downward.

4. It is the long-continued repetition, in a suitable body-form, of these influences, which collectively may be called internal traumata, that gradually produce a movable kidney.

5. A distinctly movable kidney is never the immediate result of a single injury or external trauma. M. L. Harris (Jour. Amer. Med. Assoc., June 1, 1901).

LOCOMOTOR ATAXIA, THE BICEPS TENDON-JERK IN.

Conclusions to be drawn from observations upon the biceps tendon-jerks in twenty-nine cases of tabes are:—

1. That the ataxia in the arm is, as a rule, more marked when the biceps tendon-jerk is absent.

LOWER JAW AND MOUTH.

2. That the ataxia of the arms is usually marked when the same is found in the legs. In these the biceps tendon-jerk is absent.

3. That in the presence of the biceps tendon-jerk with slight ataxia in the arms, ataxia in the legs is invariably well marked.

4. That sensation is usually normal in those cases with normal biceps tendon-jerk.

5. That the sensory losses are usually found when the biceps tendon-jerk is absent.

6. That arthropathies are only found in the advanced cases.

7. That astereognosis is only present in the markedly ataxic.

8. That the loss of the sense of position is almost constant in the advanced cases of tabes.

9. That the shooting pains in the arms do not bear any relation to the degree of ataxia.

10. That the marked ataxics seldom show the loss of weight-sense.

11. That the intensity of the symptoms are not dependent on the duration of the case, but rather upon the extent of the sclerotic process. In those cases in which the biceps tendon-jerks are absent, the sclerosis probably extends to the cervical region, but this reflex may be absent in normal individuals. Moses Behrend (Phila. Med. Jour., June 1, 1901).

LOWER JAW AND MOUTH, OPERATIONS UPON.

Recently the rough manipulation necessary to separate the jaws during the tetanic closure of the mouth has been avoided, by resorting to an easy and only slightly injurious method, namely: lifting of the hyoid bone forward. A small, strong, pointed hook is passed up

behind the middle of the body of the hyoid bone and hooked into the bone, which is then pulled forward. The tongue and epiglottis follow the hyoid bone in its forward movement, the epiglottis from traction on the hyo-epiglottic ligament.

Without exception, the respiration becomes free when this manipulation is resorted to during asphyxia in chloroform narcosis, caused by closure of the entrance to the larynx.

If the hyoid bone is pulled forward, either by the sharp hook of Kappeler or by the loop as personally devised, the mouth closed and the tongue untouched, the posterior (lower) half of the entrance to the larynx is made free, and the anterior (upper) half of the larynx is covered by the root of the tongue, which also covers the epiglottis.

If, in addition to the pulling forward of the hyoid bone, traction is made on the tongue, the whole of the entrance to the larynx is made free. The tongue and epiglottis have disappeared forward under the soft palate.

Traction on the hyoid bone is far more effective than any other method, because this is the only manipulation that makes the entire posterior commissure of the larynx with the arytenoid cartilages visible.

Through a small longitudinal incision over the middle of the body of the hyoid bone, it is easy, by means of an aneurism-needle, to pass a loop of silk around the posterior surface of the body, up over the upper border, and out through the wound. A small pad of iodoform gauze is packed in the wound and the loop tied over it, the ends being left long enough to permit of manipulation by the operator or anæsthetizer during the operation. At the close of the operation the loop is left in place and attached to a

plaster-of-Paris cast loosely covering the dressing at the field of operation, with traction on the hyoid bone sufficient to prevent any sinking back of the larynx and epiglottis, and thus to keep the entrance to the larynx open even during sleep. The loop may be allowed to remain for three or four days, until the patient is able to breathe without difficulty with the head and body in any position. The small wound over the hyoid bone adds nothing to the gravity of the operation. Christian Fenger (*Annals of Surg.*, June, 1901).

PANCREATITIS, ACUTE.

Treatment.—In acute infective pancreatitis treatment practically resolves itself into that of peritonitis, commencing in the superior abdominal region. The pain at the onset necessitates the administration of morphine, and the collapse will probably demand stimulants, which may have to be given by enema. In the early stages the symptoms are usually so indefinite that the indications for surgical treatment are not clear enough to warrant operation, and until the collapse has passed off no surgical procedure would generally be justifiable.

Just as in a perforative or gangrenous appendicitis an early evacuation of the septic matter is necessary to recovery, so in this equally lethal affection an early exploration from the front through the middle line above the umbilicus, or from behind through the left costo-vertebral angle, is demanded, in order to evacuate the septic material and adopt free drainage.

The after-treatment should be chiefly directed to combating shock and keeping up the strength until the *materies morbi*, both local and general, can be thrown off.

Even if no pus be found, no harm

should accrue by such an exploration. After establishing the diagnosis by the anterior small incision and the introduction of a finger, the posterior incision, which must be a free vertical one in the left costo-vertebral angle, so as to permit the insertion of the whole hand if thought desirable, will enable the diseased organ to be freely examined and, if necessary, drained for the evacuation of pus and gangrenous material. A. W. Mayo Robson (Phila. Med. Jour., June 1, 1901).

PANHYSTEROCOLPECTOMY.

Panhysterocolpectomy, a new prolapsus operation, consists in complete removal of the uterus and vagina, followed by operative obliteration or columnization of the bed of the genital tract. The tubes and ovaries are not disturbed, if healthy; if diseased, they are removed with the uterus and vagina. Obliteration and columnization of the bed of the removed uterus and vagina are effected by means of from seven to nine buried pursing sutures of chromicized catgut placed about two or two and a half centimetres apart, and running parallel to each other. Each suture gathers the raw surfaces from the periphery in circular fashion, and draws, or purses, them together in the median line. It is buried by being pushed upward toward the abdomen, while the next suture is being tied beneath it. G. M. Edebohls (Med. News, June 22, 1901).

PERICARDITIS.

Treatment.—In the treatment of rheumatism, acute infectious fevers, and septic processes one should keep ever in mind the possibility of pericarditis as an aftermath, and insist upon absolute rest and quiet until this danger is past. There must be enforced rest and quiet

surroundings. Milk is the most suitable diet. It should be given in small quantities every two or three hours. For the relief of pain a blister over the pericardium will be sufficient, or, if it continues, cold applications, cold cloths, or an ice-bag used as needed. When other means fail, morphine should be given, guarding it with proper cardiac support. For the restlessness, bromide of soda is preferred, given usually during the day, commencing about noon, again at 4 or 6 in the afternoon, and at bed-time. For the sleep trial is of value. If combined with sulphonal its effects are prolonged. For the cardiac distress strychnine may be given or, if necessary, digitalis with strophanthus. If effusion is moderate, unless septic, it will be absorbed, and, even if large, the chances are that, with cautious use of diuretics and purgatives, it will disappear. The indications for surgical interference are, according to Osler, "dyspnoea; small, rapid pulse; dusky anxious countenance," and, it may be added, the physical signs of extensive effusion. F. P. Norbury (Amer. Medicine, June 15, 1901).

PITYRIASIS VERSICOLOR.

As a result of experience, personal conclusions regarding pityriasis versicolor are: 1. The old theory that only hidden parts are affected is no longer tenable. 2. Allen's iodine test is of marked value not only for class-room demonstration and for bringing into relief pale and hidden lesions of pityriasis versicolor, but also for differentiating parasitic or presumably parasitic skin affections from those of a non-parasitic nature. 3. Recurrences are, in the main, due to the overlooking and non-treatment of the suprapubic region and to the use of desquamative agents to the exclusion of penetrating ones. Both must be com-

bined if a cure is desired. 4. Phthisical subjects, while affected in great measure on account of the hypersecretion of sweat, do not form the greater part of these patients. It occurs in all degrees of health and disease, a marked hyperidrosis, however, predisposing toward it. 5. Children and the very old are occasionally, though rarely, attacked. 6. It may occur in all shades from a very light pink to almost coal black (pityriasis nigra), the color being influenced by the condition of cleanliness, the circulation of the skin, the occupation of the patient, and the color of the underclothing. Jacob Sobel (Phila. Med. Jour., June 1, 1901).

PREGNANCY, NAUSEA AND VOMITING IN.

Treatment.—The treatment that has been generally satisfactory personally in the nausea and vomiting of pregnancy is feeding the patient day and night. Of course, one cannot expect to get permanent relief in all cases, but feeding the patient, constantly feeding her, gives the most relief and comfort to the patient. A pregnant woman with nausea and vomiting then should have a glass of milk, crackers, oranges, or anything else she may take a fancy to, setting on a table near her bed at night so she can satisfy her hunger at any time. Before rising in the morning she should have a good substantial meal, consisting of coffee, milk, eggs, mutton-chops or beefsteak, buttered toast, or whatever else she may fancy. After partaking of her breakfast in bed she may rise, and during the day thereafter she may take about three more substantial meals. Fasting during the night is conducive to sickness in the morning and possibly during the ensuing day. J. M. Batten (Phila. Med. Jour., Mar., 1901).

PROSTATE GLAND, RELATION WHICH IT BEARS TO THE FECUNDATIVE POWER OF THE SPERMATIC FLUID.

In order to elucidate more clearly the connection which the prostate gland holds to fertilization, a series of experiments were instituted in which the gland in white rats was excised in part and in whole, and its effects on fecundity noted.

From experiments the following conclusions can safely be drawn:—

1. That a removal of the anterior lobes of the prostate gland in rats has no effect on breeding: but in a certain number it diminishes the fecundating power; and in a few it is destroyed entirely.

2. Complete excision has a very marked effect on fecundity, reducing it to almost *nil* when the gland is entirely removed.

3. Partial or complete removal of the prostate has no effect upon the sexual desire and capacity.

4. Complete removal of the gland in the adult animal has no effect on the histological structure of the testicles. Complete removal of the prostate in the young animal has no effect upon the subsequent development of the testes. George Walker (Johns Hopkins Hosp. Bull., Mar., 1901).

PSOAS ABSCESS.

Treatment.—The practical conclusions from a study of psoas abscess are that fever is not necessarily an accompaniment of psoas-abscess formation; where it does occur, the prognosis is not so good as where it is absent; the best method of operation is by a lumbar or an iliac incision, one or the other, and preferably the latter. It seems best to put on a plaster jacket almost immediately after operation to enable the patient to sit

erect and to enable the abscess to drain almost from the first. R. W. Lovett (Boston Med. and Surg. Jour., May 16, 1901).

RECTUM, RESECTION OF, PER VAGINAM.

The advantages offered by the vaginal route are:—

1. The sacrum and posterior bony wall of the pelvis are not disturbed.

2. The field of operation is as extensive and the anatomical parts as accessible as in the transsacral operations.

3. The peritoneal cavity is opened in both the vaginal and sacral operations, and in neither is it a source of great danger.

4. The diseased tissue is more accessible for inspection and the extent to which the operation may be carried in an upward direction is as great, if not greater, than by the sacral route.

5. The peritoneum may be drained freely through the vagina.

6. A perfect end-to-end approximation, either by suture or by the use of the button, may be secured. The preferable method of uniting the two ends is by interrupted sutures of silk, because, as there is no peritoneum on the sphincteric segment, failure of union with the button is to be feared.

7. The sphincter is retained and the perineal body is restored. There is diminished action of the levator ani muscle.

8. When the operation is complete, the parts are practically in their normal positions. J. B. Murphy (Phila. Med. Jour., Feb. 23, 1901).

SPINAL ANALGESIA.

The following conclusions are obtained from fifty cases of spinal analgesia:—

1. Cocaine is far more satisfactory

than eucaine. The latter is less potent, more evanescent, the areas of analgesia are frequently "patchy," having the pain-sense retained all around them and not being so complete below definite levels. The cocaine produces no more unpleasant after-effects than eucaine, and is decidedly more reliable.

2. Analgesia to the level of the diaphragm can be depended upon in all cases where a moderate dose of a potent solution of cocaine has been introduced by lumbar puncture. In some the analgesia is sufficient for operation on the upper extremities.

3. Complete analgesia, including the eyes, mouth, and throat, has occurred. It does not entail more severe after-effects than when the lower extremities only are involved.

4. The preparation of the patient as for a general anæsthetic diminishes all the unpleasant effects of cocaine and eucaine and often prevents them altogether.

5. By moderate doses of bromides before the injection the initial vomiting is frequently avoided and the liability of headache lessened.

6. In neurotic patients there are often hysterical symptoms directly following the completion of the injection, but, as a rule, in a few moments a calm follows, and the patient lies perfectly still.

7. Initial nausea and vomiting often occur soon after the puncture, but last only for a moment or two, and usually do not recur during the operation. As consciousness, as well as the muscular power, is preserved, the danger of the introduction of the vomitus into the lungs is practically *nil*.

8. Analgesia lasts from 30 minutes to 4 hours.

9. Depression after the puncture is inconsiderable. The use of ethyl-chlo-

ride (Bengue) largely prevents pain when the needle is introduced.

10. The preparation of the patient, the use of nitroglycerin by hypodermic injection, or the employment of coal-tar products with caffeine, control the headache, which is, in many instances, an after-effect of spinal puncture.

11. In a few cases there may be motor paraplegia or vertigo. Both are temporary.

12. Spinal puncture has not affected normal or diseased kidneys.

13. Usually the tactile power, muscular sense, and the ability to detect heat and cold are retained. The cautery at a dull-red heat causes no pain, while hot water produces marked discomfort.

14. Usually the patient sleeps the first night.

15. There is often a temperature of a few degrees within eight or ten hours of the operation. Whether this is the direct result of the puncture or the effect of psychical disturbances is not determined. The circulation and respiration are not seriously embarrassed. W. S. Bainbridge (*Med. News*, May 4, 1901).

SPRAINS, MUSCULAR AND JOINT.

After a study of muscular and joint sprains, the following conclusions have been reached:—

1. Ligaments are rarely, if ever, torn in so-called sprains, and are never stretched. 2. The pathology in the majority of sprains is a rupture of the areolar and connective tissue around the joint, and a contusion of the lining of the joints. 3. Immobilization of muscles is not rest. On the contrary, in all sprains the muscles should have passive exercise the first few hours and days, and active exercise after that. In the majority of cases active exercise should be instituted from the beginning. 4. The

plaster casts should not be used at all, even in cases where we have a fracture, unless it be impossible to maintain a proper position of the joint. 5. Hydrotherapy in the shape of ice applied over a wet cloth the first few hours; water in the shape of hot fomentations or in the shape of the Scottish douche, where we wish a stimulation, is of very great value. 6. The counter-irritation of static electricity in conjunction with massage is the best treatment for a strain. 7. The ambulatory treatment of sprains in conjunction with massage is to-day the best treatment. Haldor Sneve (*Jour. Amer. Med. Assoc.*, June 1, 1901).

STOMACH, HOUR-GLASS.

Symptoms. — The symptoms of hour-glass stomach are most often those of dilated stomach supervening upon chronic ulcer of the stomach. In most cases recorded a diagnosis of "dilated stomach" has been made, and in those dealt with surgically operative interference has been undertaken for the relief of supposed pyloric stenosis. Two of the most helpful signs pointed out by Wölfler are: 1. A phenomenon observed upon washing out the stomach. The fluid introduced into the stomach seems to disappear, "as though it had flowed through a large hole," and is not returned through the tube. 2. It was further noticed that when the stomach was washed out until the lotion returned clear a sudden, unlooked-for gush of foul or even putrid fluid occurred; or, if, after gentle lavage until the stomach seemed clean, an interval of a few minutes was allowed to elapse and the tube again passed, foul or dirty fluid at once returned. Jaworski noticed in one instance that after apparently emptying the stomach by passing the tube a splashing sound could still be obtained by pal-

pation over the gastric area. Eiselsberg remarked in one of his cases that upon injecting a quantity of fluid into the stomach there were a bulging and distension of the left side of the epigastrium: after a few moments this gradually sank and subsided, and simultaneously a swelling of the right side of the epigastrium slowly developed. A sign to which Eiselsberg also called attention consists in distending the stomach with CO_2 , the bubbling and gushing of fluid through a narrow chink being heard with the stethoscope.

The symptoms resulting from a narrowing in the stomach will depend upon the part of the viscus affected. If the contraction be near the pylorus, the cardiac pouch will distend to almost any capacity and the clinical picture will be that of dilatation of the stomach. If the stricture be placed but a little way from the cardia, the symptoms will suggest œsophageal obstruction. The differential diagnosis can, however, be achieved by noting the distance which the œsophageal bougie passes. B. G. A. Moynihan (*Lancet*, Apr. 27, 1901).

STOMACH, PRIMARY SARCOMA OF.

So far as the recognition of the malignant nature of the disease is concerned the sarcomata do not offer any particular difficulty. The intractable character of the gastric symptoms, coupled with the progressive emaciation, physical debility, and cachexia, indicates a profound disturbance of the processes of digestion and assimilation, while the discovery of a growing tumor connected with the stomach or of metastases in other viscera demonstrates at once the existence of a neoplasm. A diagnosis of round-cell sarcoma of the stomach may often be made by attention to the following facts: 1. The disease usually occurs before thirty-

five years of age; so that, the younger the patient, the greater the probability that the malignant affection is sarcomatous in character. 2. In many cases there is slight, but continuous, pyrexia, accompanied by rapid and profound anæmia, while in carcinoma fever is always absent during the early stages of the complaint and the cachexia much more gradual in its development. 3. Simple enlargement of the spleen is by no means infrequent, but is never met with in cancer unless the organ is involved in the growth. 4. According to Kundrat, the tonsils are apt to enlarge and the follicles upon the side of the tongue may become swollen or ulcerated. 5. Secondary deposits in the skin occur in a notable proportion of the cases and permit of excision and microscopical examination. It should be remembered, however, that sarcomatosis has been met with in true cancer of the stomach (Leube). 6. A large nodular tumor due to infiltration of the omentum or a greatly enlarged liver with secondary growths in its substance are rarely met with. 7. Persistent albuminuria is often observed in sarcoma, but is exceptional in cancer. 8. The discovery of pieces of morbid growth in the vomit renders the diagnosis certain (Riegel, Westphalen).

The spindle-cell and myosarcomata are chiefly characterized by their comparatively slow growth; the smooth, firm, and movable tumor; the frequent absence of pain, vomiting, and anorexia; and the tendency to repeated hæmorrhage. W. Soltan Fenwick (*Lancet*, Feb. 16, 1901).

TALIPES (EQUINO-VARUS).

Treatment.—From a study of personal operations upon 1650 cases of club-foot the following conclusions may be drawn:—

1. All feet at any age after the fourth month with shortened skin and ligaments should be operated upon by open incision.

2. Prolonged mechanical treatment covering a period of months and years in any case is wrong.

3. While the author is prepared to admit that many such cases can be benefited or cured, the surest and easiest plan for the patient is to operate.

4. The operation is not completed until the foot is placed in the supercorrected position: fixed upon the leg and the heel prominent so that it strikes the ground in walking before the anterior segment of the foot does. Such feet will take the weight of the body in such a direction as to turn them still farther outward and prevent relapse.

5. Club-foot shoes of every name and nature have been personally entirely discarded. The human hand is the best club-foot machine ever devised, and by manipulation the foot is carried to the supercorrected position and fixed there with a plaster-of-Paris shoe or adhesive plaster.

6. The treatment just begins after the operation is completed.

7. Osteoclasia should be performed in all cases of inward twist of the tibia, or relapse may be looked for.

8. Bone operations should never be performed primarily.

9. Open incision should supplement all cases of subcutaneous tenotomy when it fails to supercorrect.

10. Short tendons and ligaments should be cut, and not stretched, because prolonged stretching results in deformities of the entire tarsus.

11. A case cannot be said to be cured and free from the dangers of relapse until the heel strikes the ground first in walking.

12. A cure is effected when new facets are formed on the tarsal bones.

13. Pirogoff's amputation was required in $\frac{1}{4}$ of 1 per cent. in personal series of cases.

14. Open incision should never be performed unless the skin resists, and will not stretch sufficiently to allow of supercorrection and the proper unfolding of the foot.

15. The weight of the body falling upon any club-foot shoe or brace nullifies the action of the apparatus. This was the reason why the late Mr. Adams treated one foot at a time with his club-foot shoe, putting the patient upon crutches until the foot was cured. A. M. Phelps (Brit. Med. Jour., Oct. 20, 1900).

TUBERCULOUS GLANDS OF THE NECK.

Treatment.—Modification of personal cataphoric method for the destruction of cancer successfully used in tuberculous glands of the neck. The object of the method is the destruction of the bacilli by the cataphoric diffusion among them of nascent oxychloride of mercury, developed in their midst by the electrolysis of metallic mercury held in contact with a small gold electrode. A small opening is made through the skin, and into the gland by a narrow bistoury, under a chloride-of-ethyl spray, and into the opening is thrust a sliver of amalgamated zinc to act as an anode, not insulated, of a weak galvanic current,—1 to 3 milliamperes,—which is turned on gradually and maintained for a few minutes to cauterize the tract and keep it patulous for the treatment proper. When the tract has received a sufficient impregnation with the mixed oxychlorides of zinc and mercury thus developed to keep it patulous for a few days, the zinc electrode is withdrawn and an insulated

gold electrode about the calibre of a piece of No. 18 wire is inserted, its point having previously been amalgamated and made to hold as much mercury as possible. This instrument is left bare for one-quarter inch from the point only, in order that all the current-action shall be expended within the gland, the remainder of the instrument being insulated with fused hard rubber or fused shellac. From 2 to 10 milliampères are now turned on and maintained for ten minutes, or until all the mercury has been dissipated from the old surface, after which a piece of absorbent cotton or lint is placed over the opening, topped by a piece of plaster, and the patient returns at intervals of two or three days for a repetition of the application. The endermic application of cocaine may be used to deaden the slight pain of these applications, a mere drop of a 10-per-cent. solution placed in the opening being an excellent preliminary to the later applications.

The purpose of the sinus thus formed is the drainage of the products of the dead bacilli and deposited chemicals, as well as for a direct application to the germ-colony.

Observation of two cases has given rise to the belief that the germicidal action is not confined entirely to the gland to which the application is made, but that the chemicals deposited in this situation drain downward to the next glands in the chain and favorably influence any infection in these glands.

The final result is the destruction of the tuberculous bacilli, without necessarily destroying all the gland-tissue not destroyed by the disease, and when the opening is allowed to close the scar left is a mere point, and the general health of the patient will be found to be improved. The sinus requires no special

precautions against septic infection while open, by reason of the powerfully antiseptic chemicals deposited within and about it. G. Betton Massey (*Phila. Med. Jour.*, Mar. 23, 1901).

TYPHOID FEVER.

A study of 620 cases of typhoid fever has been made in the Royal Victoria Hospital, Montreal, during the seven years ending December 31, 1900. Hydrotherapy was the routine treatment, except in a few cases where contra-indications existed.

The first bath administered was at a temperature cooled from 90 to 80 degrees, for ten minutes. The second at a temperature from 85 to 75 degrees for a similar period; and the third at the same temperature for fifteen minutes. The fourth and subsequent baths were given at 80 degrees, quickly lowered to 70 degrees for a period of fifteen minutes.

The usual precautions were taken as to friction, etc. The bath was repeated every third hour, while the temperature remained above 102.4 degrees. Bathing was resorted to throughout the entire course of the disease in about 83 per cent. of the cases.

The non-bathed cases (about 17 per cent.), included:—

1. A few who rebelled, and begged for milder measures (2 per cent.). It is not uncommon, however, to find that cold-sponging is even more disliked than the full cold bath, and a request is made to return to the latter.

2. In about 5 per cent. of all cases the temperature did not reach at any period of the disease 102.4 degrees.

3. In about 1 per cent. the reaction following the baths was so imperfect, notwithstanding the practice of active friction of the chest, neck, and extremi-

ties, and the internal administration of stimulants, that it was not considered advisable to continue their use.

4. A very few cases admitted as late as the third week of the disease were not bathed.

5. The advent of severe abdominal complications—as hemorrhage, perforation, cholecystitis, and intense nephritis—necessitated the discontinuance of the baths.

The total of this group of exceptions amounted to nearly 8 per cent. There were 34 deaths, the percentage being 5.4. James Stewart (*Brit. Med. Jour.*, June 15, 1901).

URIC-ACID DIATHESIS.

Treatment.—The treatment of so-called uric-acid cases can best be accomplished in three ways, of which the first two are prophylactic and the third curative in nature.

1. The nuclein ingestion must be limited within the capacity of the system to excrete it as uric acid and urea. To attain this object everything that furnishes increased nuclein metabolism must be avoided. Such food as meat, internal organs, eggs, coffee, or tea must be avoided. Quinine, pilocarpine, and atropine should not be administered except when absolutely necessary. Alcoholic stimulants, overeating, or too much smoking must be interdicted.

2. The oxygen-supply must be raised. A uric-acid case should be treated the same as an anæmic case: by promoting the oxygenating powers of the blood; that is, an increase in the red blood-corpuscles and of the hæmoglobin. Iron, either alone or combined with arsenic or other drugs, will accomplish the purpose. In addition to this, hygienic measures, such as out-door exercise, excursions to the mountains or sea-coast, will promote

aëration of the blood. Proper attention should be paid to the condition of the bowels, proper amount of sleep, and other hygienic conditions.

3. Whatever favors the excretion of the alloxuric bases, which are formed in the system either as a result of excessive ingestion of nitrogenous food or from deficient oxygen-supply, will act as a curative measure in so-called uric-acid cases. Sodium salicylate has been clinically used for years, with very good results.

It is believed that the good effects noticed from the administration of lithia salts are not so much due to the lithia salts as to increased amounts of water introduced into the system and the consequent flushing out of the kidneys.

Reasoning that a great many of the so-called uric-acid cases are due to the alloxuric bases produced by a deficient oxygen-supply, Crafton used as a remedial agent inhalations of oxygen, with striking results. On six occasions did he "cut" an attack of gout by giving the patient inhalations of oxygen repeated at short intervals. He states that he can invariably relieve, if not cure, a uric-acid headache, a migraine,—in short, lithæmic attacks,—by oxygen inhalations. Otto S. Binswanger (*Med. Sentinel*, Mar., 1901).

UTERUS, PROLAPSE AND PROCI-DENTIA OF THE.

The essential feature of prolapse is the want of supporting power of the pelvic connective tissue. To suture the uterus to the abdominal walls is to support the pelvic connective tissue by means of the uterus, and is wrong and inefficient. The best and most rational method is to draw up and attach the periuterine tissue, and thus keep the uterus up by means of its natural supports. In addi-

tion to the ordinary operations for lacerations and relaxation at the vaginal outlet, the following method is proposed:—

First, shorten the round ligaments intraperitoneally, making one large loop of each ligament, and then stitch the loop to the parietal peritoneum a little above and internal to the internal inguinal ring, which is plainly marked by the entrance of the ligament. The uterus is now held in a nearly normal position and the relationship of the other ligaments, as well as the effect of our work upon them and upon the position of the uterus, can be gauged at every step.

Second, suture the infundibulo-pelvic edges of the broad ligaments forward to the parietal peritoneum, external to the internal inguinal rings, as high as they can be drawn without much resistance. Then suture any available relaxed part of the broad ligament forward over or beside the round-ligament loops.

Third, put a suture through the base of each round ligament at its junction with the uterus, and suture it to the peritoneum over and beside the bladder.

Fourth, examine the sacro-uterine ligaments. If the peritoneum corresponding to their location is not drawn up and made somewhat taut by the new position of the uterus, or if the cervix sags far forward toward the vaginal entrance, make a short fold or tuck in it and suture it to the broad ligament beside the cervix, and perhaps slightly to the edge of the cervix, getting as broad a peritoneal apposition as possible.

Fifth, search for the remains of the urachus at the lower end of the abdominal incision. Start a slit in the peritoneum an inch above the lower angle, and half an inch on either side, and extend them downward and outward to the bladder-wall. Make a transverse incision

on either side, uniting the upper end of the slits to the abdominal incision. Separate the peritoneum between these slits, including as much connective tissue as possible, from the underlying fascia, and there will be formed a partly divided flap of connective tissue and peritoneum, with the urachus near its centre. Fold or twist this loosely into a sort of cord, and attach it to the rectus fascia at the edge of the incision, and high enough up to draw the bladder and anterior peritoneal wall well up. This suspends the bladder somewhat after the manner described by Dawson (*Brit. Med. Jour.*, July, '98).

The external sutures should catch hold of the newly formed vesical cord, or artificial urachus, and the lower one may even engage a few fibres of the vesical wall: Henry T. Byford (*Amer. Gynec. Society*, May, 1901).

VENOUS SINUSES OF BRAIN, WOUNDS OF.

Conclusions regarding wounds of venous sinuses of brain are:—

1. Wounds of the venous sinuses of the brain should be classed as dangerous injuries, being followed by a high mortality, from external or intracranial hæmorrhage or septic infection.

2. They are especially liable to infection, resulting in septic thrombus and pyæmia; therefore the greatest care should be taken to render them aseptic and preserve them in that condition.

3. The most satisfactory and generally available method of treatment consists in controlling the bleeding by aseptic gauze packing.

4. Ligation of the venous sinuses presents definite dangers in itself, is only available in certain wounds, where a free exposure of the injured sinus is possible,

and cannot be employed with advantage in ordinary accidental wounds of the sinuses.

5. The application of a lateral ligature to a wound of a sinus is less difficult and dangerous than ligature of the sinus, but is only applicable to small wounds.

6. Suture of sinus-wounds is a valuable procedure in a certain class of cases,

namely: small wounds which can be freely exposed.

7. Forceps pressure is also a ready method of controlling hemorrhage from wounds of the sinuses, but possesses no distinct advantages over some of the other methods, and its employment is accompanied by certain dangers. H. R. Wharton (*Annals of Surg.*, July, 1901).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Transactions of the Twenty-second Annual Meeting of the American Laryngological Association, held in the City of Washington, D. C., May 1, 2, and 3, 1900. 1901.—Year book of the United States Department of Agriculture, 1900, Washington, D. C., 1901.—Affections of the Eye and its Appendages in Bright's Disease. By William Cheatham, Louisville, 1901.—On the Use of Suprarenal Extract in Diseases of the Nose and Throat. By Seymour Oppenheimer, New York, 1901.—A Critical Review of the Literature of Mastoid Disease and its Complications. By Seymour Oppenheimer, New York, 1901.—The Pathology, Diagnosis, Special Prophylaxis, and Treatment of Tuberculosis of the Middle Ear. By Seymour Oppenheimer, New York, 1900.—Intestinal Suture, All Knots Inside. By F. Gregory Connell, Chicago, 1901.—Exstrophy of the Bladder. By F. Gregory Connell, Chicago, 1900.—Operations for Injuries to the Median and Ulnar Nerves. By B. Brindley Ends, Chicago, 1901.—A Combined Intranasal and Extranasal Operation for the Correction of a Congenital Concave Vertical and Lateral Deformity of the Nose, with the Report of a Case. By B. S. Booth, Troy, N. Y., 1901.—Papillomatous Growth of the Tonsil. By J. Payson Clark, Boston, Mass., 1900.—Purulent Choroiditis, Following an Attack of Mumps; Diagnosis, Metastatic Choroiditis, Revised by Study of the Enucleated Eyeball. By J. T. Carpenter, Philadelphia, 1901.—Report of a Fatal Case of Hernia Through the Fossa Duodeno-jejunalis. By F. G. Finley and D. D. MacTaggart, Montreal, 1900.—Concerning the Causation of Cancerous and Other New Growths. By J. George Adami, Montreal, 1901.—Neuritis from Gunshot Injury. By F. G. Finley, Montreal, 1901.—Leucocytosis and Typhoidal Perforation. By Colin K. Russel, Montreal, 1901.—Household Tests for the Detection of Oleomargarine and Renovated Butter. By G. E. Patrick, U. S. Department of Agriculture, Washington, D. C., 1901.—The Course of Prices of Farm Implements and Machinery for a Series of Years. By George K. Holmes, U. S. Department of Agriculture, Washington, D. C., 1901.—The Principal Insect Enemies of Growing Wheat. By C. L. Marlatt, U. S. Department of Agriculture, Washington, D. C., 1901.—A Forest Working Plan for Township 40, Totten and Crossfield Purchase, Hamilton County, New York State Forest Preserve. By Ralph S. Hosmer, Field Assistant and Eugene S. Bruce, Lumberman, Division of Forestry, U. S. Department of Agriculture, Preceded by a Discussion of Conservative Lumbering and the Water-supply. By Frederick H. Newell, Hydrographer, U. S. Geological Survey, Washington, D. C., 1901.—Our Trade with Scandinavia, 1890-1900. By Frank H. Hitchcock, U. S. Department of Agriculture, Washington, D. C., 1901.

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ECZEMA.

Symptoms.—In eczema about the finger-nails W. Dubreuilh and D. Freche¹ state the matrix or the bed of the nail may be affected, primarily, or by contiguity from eczema on the back of the finger. The first sign is the redness of

the supra-ungual tissue, which becomes painful to pressure. Rarely so much serum may exude that the nail is lifted up, and finally falls off. Striations are noted in the nails, with punctiform de-

¹ Jour. de Méd. de Bordeaux, Apr. 14, 1901.

pressions. The whole nail may be raised from its bed or a depression may appear in the median line. If the eczema is chronic, the nails will be deformed.

Treatment.—W. R. Ingle Dalton² says that treatment of eczema must consist in taking into consideration the general underlying conditions. Those patients suffering from chlorosis, or anæmic subjects, should have tonics, such as phosphorus, iron, strychnine, and mineral acids. Above all, a dietary should be strictly enforced: Meat, if allowed at all, only once a day. No oatmeal, no strawberries, no sugar, not even in coffee or tea. This dietary is to be adhered to for several weeks. Water, in large quantities, should be drunk every day. Gottlieb favors a milk diet for some time. The alimentary canal should be kept as antiseptic as possible by means of the administration of naphthalin, charcoal, and ipecac. Lately ichthyol, combined with arsenic, has been personally used, in the so-called strumous diathesis, as follows:—

R Ammon-sulph-ichthyolat., 3 drs.
Acidi arsenosi, 4 grains.
Glycyrrhizæ, q. s., et ft. pil. No.
180.

M. Sig.: One or two after each meal.

Those cases where the surfaces are excessively influenced by inflammation (vesicular forms) should be treated by removing all causes of it. Water, for bathing purposes, in all eczemas, should be prohibited, as far as possible, unless rendered alkaline. A good lotion for the bath is bicarbonate of soda, 1 part, to 50 of water. All irritants,—thermic, chemical, or mechanical,—scratching with fingers, the secretions from sweat, the use of soaps, etc., should be attended to first. If there are scales or crusts, an oleaginous application, such as olive-oil,

after hot water and lotion of green soap, may be used. If the eczema is caused by parasites, or is of the form called by Unna eczema seborrhœicum, a germicide is demanded, such as kerosene-oil, salicylic acid, or sulphur ointment. A 5-per-cent. ointment of chrysarobin and pyrogallol, or ichthyol or tar preparations, in the squamous varieties, if there is not much secretion, ought to be exhibited. Finally, those etiological factors, springing from neurotic conditions—anaemia, leucocythemia, constipation, etc.—or whether the cause be local or external, internal or general, should be completely regulated, and appropriate remedies prescribed.

In the treatment of eczema Gaucher³ says constitutional treatment will be necessary in both the acute and chronic forms. Lithæmic, nephritic, and dyspeptic individuals should take especial care of their skin, and they should observe a strict diet, without ferments, extractives (fish, game, cheese, or bouillon), acids, or alcohol in any form. They should take milk, eggs, green vegetables, little meat,—boiled or roasted,—and fruit. Benzonaphthol can be given as an antiseptic, and laxatives should frequently be employed. Constitutional treatment of eczema is with the alkalies with feeble purgative properties, cod-liver-oil, iodides, arsenic, etc. The local treatment consists of water, with perhaps a little boric acid or picric acid in acute cases. A dusting-powder is often beneficial. When the eczema becomes chronic, alkaline baths, tar, lead, or tannin ointment, ammoniated mercury, salicylic acid, nitrate of silver, etc., may be used. For chronic eczema of the scalp, the hair must first be removed,

² Phila. Med. Jour., July 13, 1901.

³ Jour. des Praticiens, Apr. 27, 1901.

then boric or tar ointment applied under a rubber cap. When eczema occurs in the nostrils, behind the ears, etc., boric or calomel ointment is to be used, and, for eczema of the lips, wet compresses followed by oxide of zinc. Tar, mercury, and salicylic acid will prove useful in old chronic cases.

According to S. C. Martin,⁴ food adapted to the capacity of the digestive organs and the demands of the system is of paramount importance in the treatment of eczema. In cases of constipation a tablet composed of aloin, $\frac{1}{4}$ grain; strychnine sulphate, $\frac{1}{60}$ grain; extract of cascara sagrada, 2 grains; extract of belladonna, $\frac{1}{8}$ grain, given once or twice daily, will usually, when used in diminishing numbers, enable the bowels to regain their normal tone.

Alkaline diuretics are always included. The acetate of potash combined with sweet spirit of nitre has long been a favorite adjunct to the treatment of eczema, but effervescent lithium and potassium carbonates are preferred. This preparation is preferable to any other alkali.

In plethoric cases attended by constipation, instead of using the tablets already mentioned, saline laxatives are preferred. Epsom salts and cream of tartar answer a very good purpose. After the acute stage is past one should add to each dose of the saline solution about 4 or 5 drops of Fowler's solution of arsenic, and give it after meals three times a day.

In non-plethoric cases the above-mentioned tablets are given to relieve constipation, and a tablet composed of arsenic, $\frac{1}{50}$ grain; strychnine, $\frac{1}{50}$ grain, and iron by hydrogen, 2 grains, is given three times a day, after meals.

In the acute stage, with excessive heat and inflammatory action, sedative lotions

or soothing astringent ointments are indicated. A useful ointment contains the following ingredients: Zinc oxide, $1\frac{1}{2}$ drachms; carbolic acid, 5 drops; salicylic acid, 5 grains; vaselin, 1 ounce. In chronic cases, with infiltrated and thickened skin, tar ointments or scrubbing with green soap and warm water, and even scarification of the lesion, may be indicated.

Malcolm Morris⁵ says that there are two special forms of eczema which occur at the change of life,—and the commonest, that which comes most before practitioners, is acute eczema of the head and face. There is usually considerable flushing, sweating, and other nervous phenomena, headaches, and disturbances of the digestive tract: dyspepsia and constipation. A spare woman at that time of life suddenly begins to flush in the face, perhaps after taking a meal; later the disorder becomes a little more acute; she gets an acute eczema of the scalp, and it spreads down all over her face. For that condition there is no drug or combination of drugs which is of such service to relieve the symptoms, not only the eczema, but all the symptoms mentioned, as ichthyol. It can be given in tabloids covered with keratin, which does not dissolve until it gets into the intestine. The doses should be $2\frac{1}{2}$ grains, to begin with, after each meal. At the end of two or three days it should be increased to 5 grains, then to $7\frac{1}{2}$ grains, and then to 10 grains. If the patient tastes it much, the dose should be cut down a little.

With regard to local treatment, this form of eczema which occurs at the change of life requires rather more active treatment than is needed at any other

⁴ Amer. Jour. of Dermat., July, 1901.

⁵ Lancet, May 4, 1901.

time. Such cases usually bear fairly strong applications of sulphur and resorcin.

The other form at change of life is the very acute eczema which occurs about the vulva and anus.

R. Ledermann⁶ considers arsenic useful in chronic eczema. It is best given by the mouth in doses of $\frac{1}{40}$ grain of *acidi arsenosi*. Iodothyrim and thyroid-gland tabloids are extremely valuable in some of the *eczemata*. Oöphorin is useful in climacteric eczema. The internal treatment of acute eczema is very unsatisfactory. Locally, the best results are usually obtained by the free application of dusting-powders, during the erythematous and early papular stages. These are zinc, bismuth borotannate of aluminium, and dermatol. For itching, a lotion of thymol (1 in 400), *acidi carbolici* (1 in 50), and menthol spirit (1 in 50 to 1 in 100) may be used under the powder, care, however, being taken not to apply it to the face or scrotum. In the papulovesicular stages ordinary earth-clay, with from 1 to 2 per cent. of acetic acid, 1 per cent. of resorcin, or 1 per cent. of thymol, is one of the best applications. Lassar's paste, tumenol paste, and thiol or ichthyol paste are also valuable. When the crusts form *acidi salicylici*, in a vehicle of olive-oil, is useful, and an especially good formula is: *Zinci oxidi*, 1 part; *bismuthi subnitratis*, 1 part; *unguenti lenient.*, 4 parts; *unguenti simplicis*, 4 parts. The squamous forms, with their almost absent peeling processes, are to be treated by the tar preparations. In chronic eczema the internal treatment resolves itself into that of the diathesis, and the exhibition of arsenic or ergotin. The tar preparations are also to be used in chronic eczema.

H. Sagebiel⁷ has used naphthalan in cases of eczema. Of 5 patients suffering

from chronic eczema, excellent results were obtained in 4, and distinctly bad results in 1. In 35 other cases with acute eczema, the results were satisfactory in 32 and unfavorable in 3. Naphthalan has the consistency of a salve, and is applied directly without previous preparation of the surface, such as the removal of crusts, etc. A bandage is then applied and changed once in twenty-four hours, when the applications of the drug are renewed. In all the favorable cases desquamation occurred quickly, and without reaction, and a complete cure was obtained in an interval of from two days to three weeks.

In the treatment of peri-ungual eczema W. Dubreuilh and D. Freche⁸ use boric-acid or salicylic-acid washes and a dusting-powder. Resorcin may give good results in chronic inflammation.

In eczema Winternitz⁹ successfully employed red solar light, the diseased areas of skin being first covered over with a thin silk material of an intensely-red color. Exposure to strong sunlight was then made for variable lengths of time, in one case this amounting to as much as four hours. In all the cases thus treated a considerable improvement and in some a complete cure took place.

GASTRO-INTESTINAL DISORDERS OF INFANTS.

Etiology.—Moro,¹⁰ in investigating the causation of an enteritis in breast-fed babies, which cannot be explained by the ordinary causes due to dietetic errors in the mother or by such accidental disturbances as overfeeding or simple exposure to cold, examined in Escherich's

⁶ Berliner klin. Wochen., Feb. 4, 1901.

⁷ Münchener med. Wochen., Nov. 27, 1900.

⁸ Jour. de Méd. de Bordeaux, Apr. 14, 1901.

⁹ Sem. Méd., Aug. 15, 1901.

¹⁰ Jahrbuch f. Kinderheilk., B. 2, S. 530, 1900.

clinic the stools of nurslings affected with dyspeptic troubles, and in a large number of these cases found staphylococci.

This staphylococcic enteritis begins as an acute intestinal catarrh. The stools, which are acid in reaction, are ordinarily serous, and are expelled in a jet. Recovery is the rule.

If the stools are examined by the staining method of Weigert-Escherich, it is observed that the "blue" coli bacilli, which are normally found in the stools of breast-fed infants, are almost entirely replaced by staphylococci. These organisms come from the mothers' milk, being derived from the skin or from the superficial parts of the galactophorous canals, and are swallowed with the milk.

Treatment.—In speaking of the hygienic treatment of summer diarrhoea of infants H. C. Hazen¹¹ says that the room should be selected so that at some period during the day it is exposed to the beneficent effects of the sun, and it must be kept perfectly clean and well aired, and its furnishings as well.

Only those who are in attendance on the child should be permitted to remain in the room. Absolute quiet is essential.

All garbage and refuse should be immediately disposed of, and it should not be allowed to collect in heaps out-of-doors. Should the physician notice noxious odors for which he cannot account, he should have the plumbing inspected and active search instituted.

The little patient should be placed on a comfortable mattress,—not on a hot pillow in its carriage. The clothing should consist only of a light, *white*, loosely woven, woolen shirt: a loose, light robe; and diaper. Socks are not advisable. The lower extremities and feet, in severe cases, may demand artificial heat. The napkins must be imme-

diately changed when soiled, and washed, boiled, and thoroughly dried before used again. All superfluous clothing must be removed from the vicinity of the child. The sheets and bed-coverings should be changed and aired frequently.

The use of water internally and externally is far too often neglected. A bath by tub or sponge, with use of a good soap, given daily, is essential, not for cleanliness alone, but to aid diaphoresis. Bathing, by sponge, at intervals during the day refreshes the child.

T. F. Harrington¹² thinks that cleanliness, as a factor in preventing intestinal disturbances, cannot be overestimated. Cleanliness of person and surroundings, and cleanliness of cows, stables, utensils, water-supply, bottles, nipples.

The sudden chilling of the body will cause intestinal disturbances. Therefore it is better that the child wear a light woolen belly-bandage during the whole infantile life. The feeding-bottle must be of the plainest kind and capable of thorough washing. None but the nipple which fits over the mouth of the bottle should be used. The long rubber-tube attachment cannot be too strongly condemned. Soiled diapers must be washed immediately or placed in some disinfectant solution; they are capable of causing diarrhoea in other children.

Louis Fischer¹³ concludes that, when gastro-intestinal trouble arises, then milk must be stopped. At such times good results have been seen in many children to follow the use of almond-milk. This is made by scalding or blanching almonds, then beating them up, using an ounce of water for each ounce of blanched almonds, and rubbing up this

¹¹ Med. News, July 13, 1901.

¹² The Trained Nurse, July, 1901.

¹³ Med. Record, Dec. 8, 1901.

mixture and then expressing it through cheese-cloth. This should yield an ounce of almond-milk for each ounce of almonds used. Quite a large quantity of vegetable proteids are contained therein, and it is therefore a nourishing substitute. This almond-milk can be made at home, and is quite serviceable in the treatment of summer complaint.

W. E. Fitch and Harold L. Warwick¹⁴ state that the first step is to evacuate the intestinal contents. Usually for a child of two years 3 grains of calomel are ordered, rubbed up with sugar of milk and made into three powders, one every half-hour till taken, after which an ordinary dose of castor-oil is ordered. Then this is followed in a few hours with copious irrigation of normal salt solution, allowing the fluid to escape without hindrance; then an enema composed of the following is personally ordered: tannopin, 1 drachm; aqua calcis, 2 ounces; water, to make $\frac{2}{3}$ to 1 pint, which is thrown into the bowel very slowly with a long rectal tube.

Milk-foods must be forbidden for twenty-four hours or longer.

The following prescription is of value: Tannopin, 3 grains; bismuth subgallate, 2 grains; simple syrup and mixture creta, of each, q. s. ft. teaspoonful, this to be repeated every three hours. Where tenesmus is extreme it is well to use suppositories containing from $\frac{1}{4}$ to $\frac{1}{2}$ grain of cocaine. After the first twenty-four or forty-eight hours the barley-water (Jacobi's mixture) may be reduced and milk again allowed cautiously, and suddenly stopped should the stools have a putrid odor. One of the most useful measures is thorough irrigation of the lower intestine. This, to be efficacious, must be sufficiently copious and frequent. This irrigation may be used two, three, or four times a day, as the condi-

tion of the child demands. The tannopin enema, already mentioned above, should be administered twice daily, always after the salt-solution irrigations when much blood is present in the stools. If temperature runs high, baths in tepid water will very effectively reduce dangerous temperatures. Sterilized cold drinking-water may be allowed the child *ad libitum*.

Opium and its preparations are contra-indicated (*a*) in the first stage of acute diarrhoea, before the intestinal canal has been freed from decomposing matter; (*b*) when the passages are infrequent or of a foul odor; (*c*) when there is high temperature or cerebral symptoms are present; (*d*) when its use is followed by elevation of temperature or the passages become more offensive.

In all these cases an important part of the treatment is to keep up the strength by stimulants: good whisky or brandy in small and oft-repeated doses, well diluted, may be used; and when symptoms of prostration appear a wise and liberal use of nux vomica may prove very valuable. As convalescence sets in, tonics containing nux vomica or strychnine, and an organic preparation of iron, may be advantageously prescribed. The return to ordinary diet should be gradual and conservative, and if the disease shows signs of a relapse, easily noticeable by watching the character of the stools if they take an intensified putrid odor, the milk and proteid foods should be immediately stopped and the barley-water starch mixtures substituted.

Louis Fischer¹⁵ states that, when the summer disease of infancy is established, no matter whether the infant is breast-fed or bottle-fed, milk must be stopped

¹⁴ *Ga. Jour. of Med. and Surg.*, June, 1901.

¹⁵ *Inter. Med. Mag.*, July, 1901.

for at least twenty-four to forty-eight hours.

A thorough cleansing of the gastro-intestinal canal from the mouth to the anus must be insisted upon. One of the best medications is:—

1. A teaspoonful or 2 teaspoonfuls of castor-oil, followed in two or three hours by:—

R Magnes. sulphat.,
Syr. rhei arom.,
Aqua feniculi.

M. D. S.

Teaspoonful every three hours until yellow stools are produced.

Large quantities of water should be given.

To cleanse the colon, an ordinary rectal soft-rubber tube (number 6-10) is anointed with glycerin or vaselin and gently pressed into the rectum; the rectum is then thoroughly flushed with lukewarm (80° to 100° F.) decinormal salt-water solution. Several quarts should be used. The tube should be gradually pushed through the rectum into the colon.

Hypodermoclysis can be carried out in every household where a fountain-syringe exists. It is only necessary to adjust a long, sharp-pointed hypodermic needle (antitoxin needle) to the rubber tubing connected with the syringe. Nothing is so stimulating to an enfeebled heart, nothing will stimulate the circulation of the blood quicker than this method of salt-water infusion. Hypodermic injections of camphorated oil, 10 to 15 minims per dose, repeated every two or three hours, if necessary, should not be forgotten.

A. D. Blackader¹⁶ thinks that the indications for treatment in the acute diarrheas in infancy are evident: the tract must be cleared of the irritating and poi-

sonous material, and of the pathogenic bacteria which develop it, as promptly and thoroughly as possible, and for some days all food which is able to serve as a culture-medium for the growth of such germs must be withheld.

It is desirable to make use of a non-irritating, but promptly acting, purgative, and, if the stomach does not resent its presence, no drug acts more promptly and effectually than a full dose of castor-oil. Another drug fulfilling the same indications is calomel. In an infant under a year old it may be administered in the form of a powder or triturate, $\frac{1}{10}$ grain every half-hour for six or eight doses. In older and lustier children the dose may be a larger one, $\frac{1}{6}$ to $\frac{1}{4}$ grain, repeated every half-hour till 1 or 2 grains have been given. After several free evacuations have been secured, the calomel may be continued for another twenty-four to forty-eight hours in smaller doses and at longer intervals.

If the systemic disturbance is severe, in addition to purgatives it is desirable to wash out the colon as thoroughly as practicable with decinormal saline solution, at a temperature from 95° to 98° F. In carrying out this irrigation, the important points to be borne in mind are that the infant's hips must be well raised so as to favor the flow of the solution toward the higher portions of the canal, and, to make sure that the flow be slow and gentle, the reservoir must not be raised more than two feet above the level of the child. Antiseptics in this solution are undesirable.

Such an irrigation, if done effectually once or twice, need not be afterward repeated very frequently.

It is imperative that milk-foods, and especially cows' milk, should be entirely

¹⁶ Inter. Med. Mag., July, 1901.

interdicted during an attack, and its use only cautiously resumed in convalescence in such small quantities as can be easily and promptly digested by the infant.

For the past few years it has been personal rule at the onset of an attack of diarrhoea to withhold all food from the infant for at least twenty-four hours, permitting only water or a little weak spirits and water. After twenty-four hours a predigested or dextrinized gruel may be given at first in small amount, but the quantity may be gradually increased. The intervals between the feeding should not be less than two hours. As the case improves a weak, partially-predigested meat-broth or essence may be added to the dietary.

The administration of drugs plays a very secondary part in the treatment of diarrhoea; nevertheless, one may obtain valuable assistance in many instances from their judicious employment. The general consensus of opinion points to one of the preparations of bismuth, either the carbonate or subnitrate, as being of distinct benefit if given in full doses of at least 10 grains every two or three hours. If the movements are very frequent or very watery, a small amount of opium may be added in the form of the camphorated tincture.

Many cases are seen too late for full advantage to be taken of the above measures, and in such the continued presence of irritating material in the intestinal tract for many days has given rise to more or less inflammatory reaction in the superficial tissues of the intestine. In such cases, in addition to the endeavor to remove the irritant by the use of purgatives, and to the withholding of all fermentable food, distinct benefit results from the use of high irrigations of a 1-per-cent. solution of tannic acid given twice a day.

In these cases in which the fever rises above 102° F. a tepid bath at a temperature of 90° F. for five minutes is well borne.

W. C. Hollopeter¹⁷ says that to successfully remove the fever quickly one should remove the bacteria creating it in the intestinal canal. If the trouble is in the stomach, as well as in the bowels, vomiting will aid. If the toxins are in the small bowel, then one must resort to intestinal irrigation or to the laxatives. Care must also be taken not to feed the child for several days with such food as would favor the culture of bacteria.

The successful management of the feverish stage in young children can be accomplished by hydrotherapy, by intestinal antiseptics, and by rest. The first step is to empty the stomach, if it has not already been accomplished, and then to give a slight enema. This, in young children from six months to two years, is accomplished by the use of glycerin and water. About 1 teaspoonful of glycerin may be used to a tablespoonful of warm water. After that a high enema of 1 quart of tepid water and 1 tablespoonful of bicarbonate of soda is used. This is generally given by gravity. The child's buttocks are elevated at least to four inches higher than the shoulders; by means of a fountain-syringe holding two quarts and with the bag of the syringe one to two feet above the buttocks, the contents are slowly allowed to enter by gravity into the intestinal canal.

After the bowels have been thoroughly irrigated in this way broken doses of calomel should be given, $\frac{1}{2}$ grain with soda and sugar of milk, until the characteristic stool is found, and this is then supplemented by a dose of castor-oil.

Bathing of children suffering from this

¹⁷ Inter. Med. Mag., July, 1901.

condition requires care. Children who are suffering from excessive peristalsis should not be handled unduly. After the initial bath at 95° F., lasting for at least five or eight minutes, and cooled down until the temperature reaches 90° F., they are to be placed in a comfortable bed, with a light sheet and a counterpane over them, and for the next twenty-four hours they should be as little disturbed as possible. Temperature changes from that initial bath can be controlled nicely by the ice-bag: an ice-bag to the child's head, and an ice-bag or bottle under each arm and under each knee. The evening sponge-bath of alcohol is refreshing and agreeable. The medication after the first twenty-four hours of calomel, followed by the oil, would be a prescription of this kind: Bismuth subnitrate, 2 grains; salol, $\frac{1}{2}$ grain; aromatic powder, $\frac{1}{2}$ grain; sugar of milk, 1 grain. This may be given, dry on the tongue, every two hours or with every movement.

Having thoroughly sterilized the gastro-intestinal tract and instituted this method of treatment, the next step to be observed will be the feeding. The complete withdrawal of solids and every form of milk-food is indicated. Albumin-water ranks first in importance. This is administered preferably cold in young children, in the proportion of the white of an egg to a pint of water containing 1 ounce of cracked ice. It may be administered in quantities of from 2 to 4 ounces every two to four hours, according to the age and condition of the child.

Another form of nutrition is toast-water or gum-water. If, after forty-eight hours of the treatment by the bismuth and salol mixture there is still considerable peristalsis, a very satisfactory procedure is the employment of $\frac{1}{2}$ to 1 ounce of starch well boiled and of the

consistency of good cream by having it very carefully placed in the rectum, where it acts as a poultice and a local sedative to the irritated membrane of the rectum. Not until the digestion has been regained and there has been a quieting down of the peristaltic wave can one commence to increase the nourishment.

In gastro-intestinal diseases of infants J. C. Ballard¹⁸ drops all food for twenty-four hours and cleans out the bowels with calomel and castor-oil. All the water the child may wish is allowed, and, if weak or anæmic, teaspoonful doses of panopepton or liquid peptonoids are to be given every hour. The colon should be flushed out twice a day with tepid water, usually prepared as follows: Water, 1 quart; cooking-soda and salt, each, a level teaspoonful. After twenty-four or forty-eight hours, if fever has disappeared, and the child shows a change for the better, a teaspoonful of oatmeal boiled in a quart of water for not less than an hour, and then strained and sweetened with $\frac{1}{2}$ teaspoonful of the extract of malt, may be used. If this agrees with the child, after a few days some boiled cows' milk may be added: about 1 part of milk to 10 of oatmeal-water. Some preparation, such as malted milk or Nestle's food may be used after eight or ten days. This is to be continued until the child is entirely well; then the regular diet should be resumed. Barley-water may also be used in place of the oatmeal.

In very weak children, beef-tea, chicken-broth, etc., may be used with advantage, after the first forty-eight hours. In those cases which have become chronic when seen, bismuth—in the form of the subnitrate—is often of

¹⁸ Miss. Med. Record, July, 1901.

excellent service. Lactopeptin may also be of service later, as an aid to feeble digestion. Where there is considerable pain, small doses of tincture of hyoscyamus is of great service. A favorite combination is as follows, modified according to age:—

R Vini ipecac.,

Tr. nux vomica, of each, 20 minims.

Ext. hydrast. fl., 1 $\frac{1}{2}$ drachms.

Tr. hyoscyam., 2 drachms.

Elix. lactopep. cum bismuth. ad 2 ounces.

M. Sig.: Half-teaspoonful after each feeding.

In some cases a small dose of the subgallate of bismuth,— $\frac{1}{2}$ grain,—given three or four times daily, will be all the drug needed. Paregoric is often of service, where a child seems to lose strength, from continued loss of rest. As a stimulant good whisky or brandy should be used in preference to wines.

In summer diarrhœa T. S. Southworth¹⁹ considers that milk, including breast-milk, should be stopped in all cases in children under two years of age which begin with vomiting or temperature. In its place one may give dextrinized barley-water made as follows: Barley-flour, 2 tablespoonfuls; water, 1 quart; cook fifteen minutes; when cool enough to be tasted add 1 teaspoonful cereal, strain, salt, and place on ice; rice-water, egg-albumin-water, mutton-broth, beef-juice, and a sufficiency of plain boiled water, if there be thirst. One of the first three of these may be offered at the usual hours of feeding, not oftener than every two or three hours, and, unless there be vomiting, in about the quantity previously taken at a meal. In case of vomiting the stomach should be

allowed to rest as far as possible for twelve hours.

Castor-oil is especially valuable when there is much mucus in the stools. Nausea and vomiting, so often a concomitant in these cases at the outset, may almost preclude its use. In such cases calomel in divided doses, $\frac{1}{10}$ grain to $\frac{1}{8}$ grain, every half-hour or hour till 1 grain or possibly more has been taken, acts distinctly as a stomachic sedative as well as an efficient laxative. Given in these small doses it is rarely, if ever, necessary to follow it with salines.

In many cases, when the patient is first seen, the process has already existed for some time, and marked pyrexia with more or less prostration is present. At such a time it is wisest to lose no time by waiting for the action of laxatives given by the mouth, although these should be administered in every case, but one should at once proceed to remove the source of the toxæmia by irrigation of the bowel. A large douche-bag or can is filled with saline solution (common salt, 1 drachm to the pint) and a firm all-rubber catheter, not smaller, but preferably somewhat larger, than an ordinary lead-pencil, is attached. An elevation of three feet is sufficient. The choice of temperature depends upon the degree of pyrexia. If high and the patient is not in collapse, the water may be cool, and will directly aid in reducing the fever. Otherwise it should be lukewarm. Allowing the fluid to flow while the oiled catheter is introduced distends the tube and also the bowel in advance of the tube, facilitating its introduction without doubling. To be effective the catheter should extend above the relatively long sigmoid flexure into the descending colon. At least 4 quarts should be used

¹⁹ Med. News, July 13, 1901.

for the irrigation. The excess of fluid will escape in gushes beside the tube. This procedure is soothing to the child, and is often followed by restful sleep. It may be repeated once or twice a day. If there be blood in the stools, a teaspoonful of tannic acid may be added to each quart of saline solution. Vomiting which does not cease spontaneously calls for washing out of the stomach with plain boiled water, to which, if there be much acidity, bicarbonate of soda may be added in the proportion of a teaspoonful to the quart. If the toxæmia be properly controlled by the above measures, bismuth subnitrate is the most satisfactory drug for internal use. It should be given in not less than 10-grain doses every hour or two hours. Its efficiency is often enhanced by adding to each dose 1 grain of salicylate of bismuth.

When it is advisable to check increased peristalsis resulting in frequent evacuations, opium best serves the purpose. It should always be given separately, and not combined in mixtures. Marked pyrexia contra-indicates its use, and it should not be given until the bowels have been thoroughly cleared. Paregoric, in 10- to 15-drop doses, owes some of its efficiency to the camphor which it contains. Dover's powder, in $\frac{1}{4}$ - to $\frac{1}{2}$ -grain doses, is a favorite.

In the severer type of cases in which the stools are frequent, profuse, and watery, where the patient is threatened with collapse and gastric absorption in abeyance or prevented by repeated vomiting, the hypodermic use of morphine sulphate, $\frac{1}{100}$ grain for a child one year of age, not only acts upon the peristalsis, but steadies and strengthens the pulse. This dose may be repeated if necessary after one hour. With this should be given atropine sulphate, $\frac{1}{500}$ grain. Where the loss of fluid is very great and

cannot be made up by ingestion, high saline enemata should be given, or, if not retained, saline hypodermoclysis should be boldly performed. (Salt, 1 drachm, to water, 1 pint, boiled and strained.) Persistent high temperature, with nervous symptoms, calls for repeated cool sponging or bathing and the use of the ice-cap. Collapse must be met with mustard-baths, or packs, hot bottles, and hypodermic stimulation.

A tendency to rather frequent stools may persist after the acute symptoms have been overcome and the child is being cautiously led back to a simple dietary. For these Dover's powder is very satisfactory and tannalbin often useful, but even better at times is the following mixture:—

R Pepsinæ, 1 grain.

Acidi hydrochlorici diluti, 3 minims.

Glycerini, 4 minims.

Aquæ menthæ piperitæ, $\frac{1}{2}$ drachm.

Aquæ, 1 drachm.

M. Sig.: In water four times a day after food.

Stimulants are often required during the acute stages. Brandy in 10- to 30-minim doses may be employed well diluted or added to one of the substitute foods. Preparations like liquid peptonoids are most useful in 1-drachm doses given with the food at each feeding.

In breast-fed infants nursing may usually be resumed at the end of twenty-four hours, the breast being given for half the usual length of time at every second feeding and alternating with the previous bland fluid food. When the appearance of the stools has improved in color and consistency, and the symptoms and general appearance of the child indicate a return of more normal conditions,

cows' milk may be cautiously added to one of the previous foods.

At first it is wisest not to exceed a proportion of a drachm to the ounce, and often with young infants still less. As this is shown by the stools to be digested, a further increase may be made from time to time, until after the lapse of several days the child's food approximates its usual proportions. Recovery from a sharp attack of summer diarrhoea is a slow matter, and extreme care should be exercised for ten days or two weeks at least.

According to C. G. Kerley,²⁰ the rational treatment in summer diarrhoea consists chiefly in elimination and diet. In the case of the normal type with green, loose stools containing undigested milk and mucus, a teaspoonful of castor-oil or 1 grain of calomel in divided doses ($\frac{1}{10}$ grain hourly) should be given. If the case is not seen until two or three days have elapsed and the stools are frequent,—from eight to twelve in twenty-four hours,—the castor-oil should be omitted. A smaller amount of calomel ($\frac{1}{4}$ grain in $\frac{1}{20}$ -grain hourly doses) is indicated in these active cases. Cases are not infrequently seen in which the stools are infrequent: but two or three in twenty-four hours. The passages are usually very foul, and contain a large amount of mucus. There is considerable prostration, with low fever. When these symptoms are present, active purgation is required, and a teaspoonful or two of castor-oil should be followed, in twenty-four to forty-eight hours, by a grain of calomel in divided doses. If vomiting is present, neither the castor-oil nor the calomel should be given until the vomiting has been controlled by the diet and stomach-washing.

The physician must stop the milk diet at once. The younger the patient, the

more imperative the necessity of discontinuing the milk. In some cases it will not be necessary to keep milk from the child more than twenty-four hours. Others will not be able to take it with safety for weeks.

If there is vomiting as well as diarrhoea, the stomach must be washed and nothing whatever given for a few hours, when a teaspoonful of water may be tried. If the water is retained, it may be repeated every fifteen minutes. If it is vomited, feeding by gavage should be brought into use. If the water is retained, it may be followed by an equal amount of dextrinized barley-water. The next step is to give increased quantities of dextrinized barley-water at long intervals.

If the case is one of diarrhoea alone without vomiting, the mother should be instructed to give from 3 to 5 ounces of the dextrinized barley, either plain or salted, to which is added from 1 to 2 ounces of chicken-, beef-, or mutton-broth. These may be alternated with 1 or 2 teaspoonfuls of beef-juice or 1 drachm of liquid peptonoids, which is added to the barley.

The use of the white of egg in the water is practically discontinued personally. If there is much thirst, plain boiled water may be given at any time.

Barley dextrinized may be made as follows: 2 even tablespoonfuls of barley- or wheat- flour are added to 1 pint of water. This is to be boiled twenty minutes and strained, boiled water being added to make the quantity 1 pint. When the mixture has cooled to the temperature of 100° F., 1 teaspoonful of *cereo*, which is a preparation of diastase made for this purpose, is to be added.

²⁰ Med. News, Aug. 4, 1900.

The use of milk must not be commenced until the stools are nearly normal, with not over three in twenty-four hours. Not more than 1 teaspoonful of milk should be added to each feeding of the cereal water for the first twenty-four hours. If this is well borne, the quantity may be increased 1 teaspoonful every day. When 6 teaspoonfuls can be taken without harm, the increase may be made at the rate of $\frac{1}{2}$ ounce per feeding every two or three days until the customary milk strength is reached. If there is a return of the diarrhoea upon using the milk, it must be discontinued at once. In a few there will be no unpleasant results if the milk is commenced in from one-fourth to one-third the usual strength. After a severe attack of summer diarrhoea many children will be able to digest but a very weak milk mixture for the entire summer. In these cases scraped beef, beef-juice, and predigested cereals are the main reliance. Occasionally these cases will be able to digest and exist upon proprietary food until the advent of settled cool weather. A teaspoonful or two of one of the soluble proprietary foods may be added to each feeding of the dextrinized barley.

Personally, but four things are practically used: castor-oil and calomel, bismuth subnitrate (Squibb's) and opium. The new astringents, tannigen and tannalbin, have a very limited field of usefulness.

The growth and development of bacteria may be prevented best by withholding the milk diet and in the use of large doses of subnitrate of bismuth: bismuth subnitrate, 12 to 20 grains; aromatic syrup of rhubarb, 3 minims; water, to make 1 drachm.

Opium should always be given with caution and with special indications. It should never be given when the passages

are less than four in twenty-four hours. It is given only when the passages are very frequent or when they are large and watery. When opium is to be used, it is best given in the form of Dover's powder; from $\frac{1}{4}$ to $\frac{1}{2}$ grain every two or three hours for a child eight months of age.

For the fever packs, baths, and sponging are all that are necessary. In case a heart-stimulant is necessary, alcohol should be avoided, as it is very liable to derange the stomach and injure the already overworked kidneys. Strophanthus, strychnine, and digitalis may be used. In cases of direct infection, with marked prostration and uncontrollable vomiting, an hypodermic of morphine is always of service. For a child one year old $\frac{1}{100}$ grain may be given, with $\frac{1}{600}$ grain of atropine.

Irrigation of the colon has been overdone. Irrigation is of the greatest service when the stools are infrequent and foul. It is also useful in active cases: those having from six to eight passages daily, particularly if there is any blood or much mucus. The irrigations are carried out at eight-, twelve-, or twenty-four-hour intervals, depending upon the nature of the case. As a rule, a 1-per-cent. boric-acid solution or a normal salt solution (heaping teaspoonful to the pint) is employed. If the amount of mucus is very large or if the stools contain blood, a 1-per-cent. solution of tannic acid is used instead. The temperature of the solution should range between 95° and 100° F., except in cases of high fever, where it may be used as cold as 60° F. When the child is moribund and athreptic, with low temperature and low vitality, hot water acts as a decided stimulant.

For irrigation a soft-rubber catheter, No. 14 English, one that will not bend

on itself if used properly, is attached to a fountain-syringe, the bag of which should be held three feet above the patient's bed. The child must lie on the back or left side, with legs well drawn up. The folds of the buttocks are to be pressed together until the colon is filled. This in a child eighteen months of age will require 24 to 30 ounces of water. When this or a lesser amount, at least 1 pint, has passed in, one should allow the solution to run in and out at the same time, the water being forced out alongside the tube.

The clothing should be of the lightest, and on very hot days he should be in the open air in the shade, if in the country; if in the city, the coolest room in the house or apartment is far better than hot dusty streets. Whether in the city or in the country, two or three fifteen-minute spongings with water at 60° F. will make the child much more comfortable.

The mother should always wash her hands most carefully with soap and hot water before preparing the infant's food, before handling nursing-bottle, nipples, or any nursing-apparatus. A child with summer diarrhoea should not come in contact with other young members of the family.

George A. Hewitt²¹ finds that, in the form of tannigen, tannic acid passes unchanged through the stomach, and is liberated in the intestinal canal. It should not be administered until an hour or two after food has been taken. It is incompatible with warm solutions, with which it forms a sticky mass. Tannigen is best given in powder or capsule, followed by a draught of cold water.

Increasing experience has amply demonstrated the worth of tannigen in acute and chronic diarrhoea due to various causes.

In the after-treatment of summer diarrhoea of infants and children, W. M. Taylor²² states that in the return to a more ample diet after the acute symptoms of an attack of summer diarrhoea have subsided, it is best to be guided by the desire for food, the condition of the intestinal tract, as shown by the number and character of the stools, disappearance of abdominal tenderness, and tympanites.

Even after all immediate symptoms have subsided it becomes a serious question as to what food shall be used. Of the various kinds of prepared foods, the most satisfactory is the pure modified cows' milk, using as a diluent barley-water previously dextrinized by a diastase or maltine. By beginning with a percentage milk, a food that will agree with the child is almost invariably attainable.

A good plan is as follows: To decide upon the number of feedings, amount of milk, sugar, cream, and diluent to be taken by the child. As, for example, one would take 3 ounces of whole milk, 1 drachm each of sugar and cream, and 3 ounces of barley-gruel. Seven feedings of this amount and proportion may be given in twenty-four hours. Wheat- or oatmeal- flour may be used instead of the barley-flour in making the gruel.

If the above treatment fails, koumiss stands next. Beef-juice given three times daily is a most valuable aid in the condition. This should be expressed from fresh, lean beef daily. A good method for giving it is 1 drachm to 1 ounce of barley-water.

In the dietetic treatment during this

²¹ Med. Bull., July, 1901.

²² Med. News, July 13, 1901.

stage milk should form the principal factor, but children two or three years of age will not always submit to a milk diet, nor is it best to keep them on it. They may have, in addition, beef-, mutton-, or chicken- broth from which the fat has been carefully removed. Finely chopped or scraped rare roast beef is also a valuable addition. However, one should not rely on these broths to take the place of milk for any length of time, but they are of value in supplementing the milk diet. Dry toast or zwieback seems the safest and best form of farinaceous food to begin with in children who are accustomed to a mixed diet, but at first a liquid diastase should be administered to aid the digestion of starch. Some form of pepsin, as the wine or cordial, is of service in the management of these cases when a mixed diet is begun.

The general condition may be favorably influenced by inunctions of cod-liver-oil. The codliver-oil should be warmed and rubbed in by the hand from the head to the feet. This should be continued for half an hour, repeated twice daily, and followed by a warm sponge-bath.

Tonics are nearly always indicated, and the syrup of ferric iodide seems the best of all forms of iron tonics for children. It should be given in from 2- to 5-minim doses to a child two years of age. The tincture of nux vomica for older children is valuable in these cases of malnutrition with poor appetite and sluggish bowels, being best given after meals in 2-minim doses for children from two to three years of age.

John Zahorsky²³ does not dread the infection of the gastro-enteric contents so much as the malnutrition following. Very frequently after successfully ridding the infected alimentary tract of the

offending micro-organisms the infant fails to thrive. Or a severe form of cholera infantum is carried through the storm. The baby seems much better, but yet no food can be had to agree. Fever may develop, and the patient succumbs to septicæmia. In these conditions human milk, even in small doses, has a powerful therapeutic effect. It stimulates the diseased epithelial cells so that they again imbibe nourishment; it strengthens the body to resist the onslaught of infection.

Given a case of acute gastro-enteric infection of great severity, the ordinary measures must be instituted. The alimentary tract should be thoroughly evacuated, and water administered in large quantities. For two or three days rice-water or barley-water may be safely given; but then the question of additional food arises. The answer is, add a little human milk to the rice-water. Gradually increase the amount of human milk, carefully noting its effect, and if symptoms improve sterile cows' milk may be gradually substituted for the human milk. If egg-water is used during the diarrhoea, the human milk can be added to this.

In the treatment of chronic diarrhoeas of childhood J. Park West²⁴ remarks that in the beginning of treatment there should be given a preliminary cathartic of from 1 1/2 to 3 grains of calomel, with a small quantity (1/12 to 1/6 grain) of extract of hyoseyamus to prevent griping. In from five to six hours, or about the time the calomel should act, the colon should be thoroughly irrigated, and the irrigation repeated within the next twenty-four hours; it is better that

²³ Pediatrics, Mar. 15, 1901.

²⁴ Inter. Med. Mag., July, 1901.

the physician do this the first time. Irrigation will not be called for again unless special indications arise. If there has been a lenteric diarrhœa, it should be remedied by small doses of Fowler's solution and laudanum before other than dietetic treatment is begun.

Regular intervals should be fixed for meals, and particular care should be taken that there is no overfeeding. The stopping of all the previous food is usually to be insisted on, as is also weaning in some cases. Limiting the diet to one of the liquid foods (as panopepton or liquid peptonoids) for from one to three days at the beginning is often necessary. After this there may be added barley-water, egg-water, mutton-broth, small quantities of diluted and sweetened whisky, or a teaspoonful of the juice expressed from a piece of round steak slightly broiled; this can be given alone or added to the broth. The well-known mixture of 5 ounces of barley-water, 2 drachms of whisky, the white of an egg, with salt and sugar, is usually well taken. A cautious return is to be made to milk, which should be well diluted with barley-water (preferably dextrinized) and lime-water, or partly or wholly peptonized. At first this should constitute but one meal a day, to be slowly increased in amount and frequency if the progress is satisfactory.

When the stools are resuming a normal appearance, a piece of dry toast or a plain fresh cracker or thoroughly cooked rice can be given alone. Gradually a full diet for the child in hand is resumed.

In addition to the drugs mentioned above, three others have been found of value in these cases, viz.: ammonium chloride, xanthoxylum, and senna. Personally a prescription similar to the following is used:—

TETANUS. ETIOLOGY.

R. Ammonia chloridi, 1 to 1½ drachms.

Ext. sennæ fld., 2 drachms.

Ext. xanthoxyli fld., 4 drachms.

Ext. glycyrrhizæ fld., 4 to 6 drachms.

Aquæ dest., q. s. ad 3 ounces.

M. Sig.: Teaspoonful every four hours for child of two years.

After two to four weeks' use of these remedies the tonicity of the intestinal mucous membrane will be so restored that bismuth is particularly beneficial. The subnitrate of bismuth can be given alone, in large or small doses as the case requires, or with salol, or bicarbonate of soda, or with aromatic powder. As a general systemic tonic, no better one will be found than brucine. During treatment, and while the progress is satisfactory, there will occasionally occur a diarrhœa, with the passages containing large quantities of mucus. This is only temporary, but calls for a restriction of the diet and irrigation of the colon. Colonic irrigation is only to be used when there is a special indication, as above, and not as a routine measure.

Children who have had chronic diarrhœa require especial after-care for some time. A plain, substantial diet only, regular habits, care and protection of the skin, with early attention to every acute illness, or even slight indisposition, with especial reference to the gastro-intestinal tract, will prevent a return.

TETANUS.

Etiology.—Thalmann²⁵ has conducted a series of experiments on the subject of the channels of infection in tetanus. The animals used were guinea-pigs. The results of the experiments may be given

²⁵ Zeitschrift f. Hygiene, vol. xxxiii, P. 3, 1900.

as follows: 1. In guinea-pigs the digestive tract and urinary passages, healthy or unhealthy, do not serve as a channel of infection; the mouth as a point of entrance in no way differs from the skin surface. 2. The nose offers very favorable conditions for infection, either directly or by inhalation. Inhalation produces infection when the respiratory passages are in a condition of catarrh. 3. The inoculation of spores into superficial wounds is followed by a chronic and eventually lethal condition without tetanic symptoms. 4. In the so-called idiopathic tetanus in man one should suspect the point of entrance to be in the nose or mouth. 5. Rheumatic tetanus, apart from infection by the tonsils, most likely arises in connection with the diseased condition of the respiratory organs. 6. Therapeutically in the latter condition, in addition to the serum-treatment, perhaps the trial of continuous oxygen inhalation combined with expectorants may be of value.

Prognosis.—In tetanus puerperalis Kedarnath Das²⁶ says the prognosis is very grave. The average mortality of tetanus, taking all the so-called varieties together, is between 80 and 90 per cent. Garrigues has collected 57 cases of puerperal tetanus, and the mortality is put down between 84 and 92 per cent. Sixty-eight cases have been personally collected from literature; of these 68 cases only 5 patients recovered, giving a mortality of 92 per cent. Only 4 cases of unmistakable puerperal tetanus have been found, with 1 recovery, or a mortality of 75 per cent. It may thus be seen that even with the best modern treatment the mortality of puerperal tetanus is appalling. The Indian cases seem to yield to treatment better than the other cases.

Treatment.—Wilms²⁷ wishes to em-

phasize that, even with the strictest adherence to Behring's directions,—the serum-treatment should be commenced within thirty hours of the onset, and no fewer than 100 units should be injected at a time,—acute tetanus does not seem to be helped at all by tetanus antitoxin. He notes two cases of chronic tetanus in which recovery took place independently, he thinks, of the injections.

Rostowtsev²⁸ thinks the frequent disappointments following the administration of antitetanic serum are to be attributed to the fact that the tetanus-toxins combine chemically with the nerve-cells, and the antitoxin neutralizes only those toxins which are circulating freely in the blood. By the time the patient comes for treatment a considerable amount of toxin has already entered into combination with the nerve-cells, and is therefore beyond reach. Antitetanic serum is, therefore, a prophylactic, and not a curative agent.

Jinnosuke Tsuzuki²⁹ remarks that the best results are obtained with those animals which are most susceptible to the tetanus toxin. Thus a guinea-pig, which is very susceptible to Behring's toxin, is more easily saved than a rabbit, which is less susceptible. When tetanic symptoms have once appeared, the possibility of cure depends on several factors. 1. The original dose of toxin injected must not be more than twice or possibly three times the minimum fatal dose. If the dose be larger, life may be prolonged, but never saved. 2. Antitoxin must be injected within twenty-four hours of the injection of toxin. If the treatment is begun later, success is doubtful in the

²⁶ *Lancet*, Apr. 27, 1901.

²⁷ *Münchener med. Wochen.*, Feb. 5, 1901.

²⁸ *Vratch*, Feb. 24, 1901.

²⁹ *Arch. Internat. de Pharm. et de Thérap.*, vol. viii, Fasc. 1 and 2, 1901.

case of mice and guinea-pigs, even if the dose of toxin has but little exceeded the minimum fatal dose. For larger animals, in which there is an incubation-period of several days after a single minimum fatal dose of toxin, there is more chance of cure with delayed treatment. 3. If the toxin is intracerebrally injected, antitoxin always fails. 4. The direct strength of a tetanus toxin is measured by the body-weight in grammes of an animal which is killed with certainty by 1 gramme of the toxin. Some toxins, although possessing comparatively little direct toxicity, have a very high indirect activity; these require a good number of antitoxin units for neutralization, and give a smaller chance of cure than many toxins of much greater direct activity. In successful antitoxin experiments a toxin with a short incubation-period should be employed. 5. Tizzoni's antitoxin is $6\frac{2}{3}$ times less powerful than Behring's. 6. The action of antitoxin is uninfluenced by its solution in distilled water, normal saline solutions, or blood-serum. 7. If some indifferent fluid be injected hypodermically, together with or immediately after the injection of the toxin, the resulting disease runs a milder course than in animals in which no injections of indifferent fluid have been made. When such injections are made in a part of the body remote from the position in which the toxin was injected, or some time after the injection of toxin, no effect is produced. 8. The action of antitoxin is much more powerful if injected either at the site of the introduction of the toxin or in a part peripheral to it. 9. At least 1 antitoxin unit ($= 0.01$ gramme of Behring's tetanus antitoxin No. 60) should be injected for every kilogramme of body-weight of the animal, and not later than six hours after the onset of symptoms of tetanus.

J. B. Bissell²⁰ thinks that the modern treatment of tetanus resolves itself into two classes: preventive treatment by means of vaccination, and treatment after the disease is present. Preventive treatment should be carried out wherever there are cases of tetanus in the hospital or in the neighborhood of an operation; where there is a history of exposure, however remote, in a given case for operation; or in an accidental wound; in those districts where tetanus is common; or in injuries where the wound has been contaminated with earth in any way. The injection is harmless, if it be a definite and well-prepared antitoxin, and the probability of its success is great. Tizzoni reports two cases infected with a very virulent tetanus culture. Both were students in his laboratory. Antitoxin was used subcutaneously. One, in which it was used on the third day following the infection, had very slight symptoms and recovered. The other case was injected within twenty-four hours; at the end of thirteen days he had slight convulsions of the muscles of the extremities, and recovered without further symptoms.

When tetanus is present, it can be treated in three ways: By medicines, usually in the form of sedatives; by injections of antitoxin; and by a combination of the two methods. A fourth way is by the injection of some antiseptic solution, such as bichloride of mercury or carbolic acid, or by extractives, such as brain-emulsion; these substances, however, have not proved satisfactory, and in several recorded cases this method has done positive harm. Inasmuch as the antitoxin affects at once the tetanus poison in the circulation and destroys it as rapidly as it arrives, it is unnecessary to

²⁰ Phila. Med. Jour., Feb. 16, 1901.

reopen healed wounds to disinfect or to excise them, nor is it necessary to amputate members of the body; the antitoxin being able, as soon as injections are begun, to take care of and neutralize all the toxin as fast as it is produced.

The drug treatment consists almost entirely of sedatives in large doses; the heart's action being kept up at the same time with stimulants, introduced by rectum, if necessary, and digitalis and nitroglycerin by hypodermic medication.

The serum-therapy offers very favorable prospects for the cure of tetanus. In experiments made upon animals it was found that the injections of antitoxin would either save them from infection or cause a cure after the outbreak of convulsions. The serum must be of a high class and of a definite quality. It has no specific effect on the organism. Steuer proved that a neutralization of the toxin by the antitoxin takes place in a thoroughly mechanical manner, this new combination being in itself harmless. Antitoxin affects only the toxin in circulation, not that already taken up by the nerve-cells. One cannot act by injections upon the poison already in combination with the protoplasm. The serum must be absolutely sterile. If possible, the first injection must be given inside of the first twenty-four hours after the outbreak of the symptoms, and must be copious in quantity. It can be given either subcutaneously, intravenously, subdurally, or intracerebrally. Subcutaneous injection is used principally in the preventive treatment, and is of little benefit after tetanus has appeared; it must be used in very large doses. The intravenous is somewhat more favorably looked upon, but must also be used in large quantities, and is not as effective as the remaining two classes of application. The best injection of all is the

cerebral injection, which demands, however, a special technic for the carrying out of the operation, as the antitoxin serum must be introduced into the lateral ventricle itself. This can be best done according to the methods of Alexander Fraenkel or Albert Kocher. Dr. Frank Hartley, of New York City, has recently perfected a new method by which he is able definitely and certainly to inject the antitoxin into the lateral ventricles. In the subdural, or spinal, method the antitoxin is introduced beneath the dura, through a spinal foramen.

The quantity of antitoxin injected by either of these methods depends somewhat upon the severity of the symptoms, bearing in mind that a proper serum is harmless and too much cannot be given. Some authors advise that the intracerebral injection should be assisted by copious subcutaneous and intravenous, as well as subdural, injections.

Together with the serum-treatment, chloral and the bromides should always be used. This combination method offers the best hope of favorable result.

Alexander Lambert³¹ says that in the general treatment of tetanus we have three indications to follow: 1. The speedy elimination of the poison. 2. The administration of physiological antidotes to counteract the poison on the body-cells. 3. Chemical antidotes which change the poison by destroying it or by rendering it inert, and thus prevent, retard, or arrest its action. To fulfill the first indication we must increase the action of the kidneys, as the tetanus toxin is eliminated by them. The thirst of tetanus patients is usually excessive; it is best, therefore, to give them an abun-

³¹ Med. News, July 7, 1901.

dance of water or milk if they are able to swallow.

The best physiological antidote is chloral. Bromides, physostigmine, and antimony act in analogous way. Several tetanus patients have been personally seen, who were doing well and improving, to wake from a sound sleep and die in a sudden spasm of the respiratory muscles. Amyl-nitrate should be kept constantly at the bedside, and if such a spasm occurs a drop or two should be applied to the nasal mucous membrane. Morphine produces sleep and relieves the pain of the convulsive seizures. Antimony should be given combined with morphine, each $\frac{1}{8}$ or $\frac{1}{6}$ grain every two hours. This combination controls the spasm, and may be continued for two or three days without bad effects. Controlling the spasms with anæsthetics is not recommended. Sahli emphasizes the wisdom of alternating these remedies and not giving them in stated doses at regular intervals.

Taking statistics as a whole, there is a distinct improvement in the mortality of tetanus since the introduction of antitoxin.

In very acute cases in which the intensity of the infection is shown by the short incubation-period and violent course of the symptoms, the patient is beyond the aid of man. From the moment slight trismus is seen, it is not the beginning of the disease; it is the beginning of death. In acute tetanus the chances are against recovery no matter what is the line of treatment pursued. With large doses of antitoxin given intravenously to insure its rapid dissemination, the chances of recovery are better than without antitoxin. In subacute or chronic cases the chances are decidedly in favor of recovery if antitoxin is used.

If antitoxin is not used, the chances for and against recovery are about even.

During the past two years a new method of treatment recommended by Roux and Borrel has been in vogue, that of the intracerebral injection of the tetanus antitoxin.

The records have been personally collected of 52 cases of tetanus in which intracerebral injection has been performed. In these 52 cases there are 19 recoveries and 33 deaths: a mortality of 63.46 per cent. Dividing them into acute and chronic cases, there are: acute, 3 recoveries and 21 deaths,—a mortality of 87.5 per cent.; and chronic, 11 recoveries and 4 deaths,—a mortality of 26.66 per cent. There are 13 cases with insufficient data to classify them, with 5 recoveries and 8 deaths. Besides the above, in 1 chronic case subdural injections were made and were followed by recovery, and in 2 acute cases which died. When it is considered that in the majority of these cases intravenous and subcutaneous injections of antitoxin were also made and one compares these statistics with those without intracerebral injections, this new method does not impress one favorably. Borrel claims that after the first twenty-four hours of tetanic symptoms intracerebral injections are useless, and that they are also useless when the pulse is above 110 or the respirations above 25, or if dysphagia or paroxysms of suffocation are present, and in cephalic and abdominal tetanus. But as Roux and Borrel have shown that if even in small animals the superior portion of the cord is affected the animal cannot be saved, and as Ewing has shown that the brain and medulla in man are most affected, and clinically in human tetanus the first symptoms are usually those of bulbar involvement, there seems to be no en-

couragement to continue intracerebral injections.

In acute tetanus the chances are against recovery; hence, in all severe wounds in regions where tetanus is not uncommon, one must consider the preventive inoculations of antitoxin. Bazy in France, after having four fatal cases of tetanus in one year, has made it a practice to inject 10 cubic centimetres of serum into all patients who have come under his care with wounds which caused him to fear tetanus. He did not see a case of tetanus again, although his practice has been in a region notorious for tetanus. He has since reported that in one man in whom the inoculations were accidentally omitted tetanus did develop. The results of Nocard's method of preventive inoculations in veterinary practice are most striking. Among 63 veterinarians there have been inoculated 2727 animals with preventive doses of antitoxin, and not a single case of tetanus developed, while during the same period in the same neighborhoods 259 cases of tetanus developed in non-inoculated animals.

Many cases of human tetanus could doubtless be avoided if these preventive doses of 10 cubic centimetres of antitoxic serum were more generally used. Behring recommends very strongly that the antitoxin should be given not later than thirty hours after the first symptom and that 100 units be given at once. His 100 units mean 10 cubic centimetres of his serum. He has a certain standard toxin which he uses and which remains constant. One unit is the amount of serum necessary to protect without symptoms 4,500,000 grammes of living mouse against this standard toxin. The French method of Roux is to calculate how many grammes of test-animal will be protected against a 4- or 5-day fatal dose of toxin.

It is then stated to be one to so many millions.

In using the serum in man intravenous injections will act much more surely and quickly, and should be given when possible; 20 cubic centimetres to 50 cubic centimetres should be given as the first dose, followed twelve hours later by 20 cubic centimetres more. Ten to 20 cubic centimetres should be given every twelve to twenty-four hours later till the spasms cease. In children half the dose should be given. The local and physiological remedies should never be omitted.

James Ritchie²² details experiments bearing on the relation of resistance to tetanus toxin in the immunized guinea-pig to the antitoxin value of its serum. The method of immunization used was to administer at intervals of four days equal doses of tetanus toxin the toxicity of which had been destroyed by means of hydrochloric acid. He compared the action of four such doses with the action of eight doses. In the former case while the animals presented a resistance to 43 minimal lethal doses, there was in the whole blood of the animal just sufficient antitoxin to neutralize between one and two minimal lethal doses. In the latter case while a resistance of 1000 minimal lethal doses was present, there existed in the serum of the whole body only sufficient antitoxin to neutralize about 100 minimal lethal doses. Two other series of animals similarly treated gave similar results. In a further experiment, when the effect of four doses of modified toxin was compared with the effect of four doses of double the amount of toxin, a resistance of 2500 minimal lethal doses was developed in the latter, as against a resistance of 50 minimal lethal doses in the former, the antitoxin value of the

²² *Lancet*, July 13, 1901.

sera being about the same. The general conclusion was that early in the process of immunization there was developed a very high degree of resistance, while there was very little antitoxin present in the blood.

Homa³³ notes a case of tetanus in a boy of 9, whose toes were frozen. Trismus followed, and gangrene set in in both feet, for which a Chopart and a Pirogoff amputation followed. The first tetanic spasm came on six hours after operation. Tetanus bacilli were found in the discharge, and the Tizzoni antitoxin given. Although forty-seven attacks occurred in twenty-four hours, the child recovered four months later.

J. McCaw³⁴ says that, in a child aged 13 days, suffering from tetanus neonatorum, treatment was begun by the subcutaneous injection of 5 cubic centimetres of tetanus antitoxin, and this was followed, two days later, by 2 1/2 cubic centimetres of antitoxin, with satisfactory results. Bacterial examination of the discharge from a sloughing surface at the umbilicus showed a plentiful growth of bacilli having the characters of the tetanus bacilli. Streptococci were also found.

F. L. Taylor³⁵ states that Roux and Borrel teach that the higher in the cerebro-spinal axis the lesion is situated, the smaller the chance of recovery in animals. Now, in man the first symptom noted is usually trismus, which certainly proceeds from centres situated at least as high as the medulla oblongata. The central injection, to be of service, then, it would seem, would have to be employed very shortly after this symptom is noted.

The indications for treatment are:—

1. To remove the infection-atrium, and so prevent the formation of more toxin.

2. To neutralize the poison in the blood.

3. To prevent the extension of the poison to the higher centres.

4. To quiet the cells already irritated.

5. To facilitate elimination.

Attention is called to the Baccelli method of treating tetanus by means of hypodermic injections of carbolic acid. Ten minims of a 10-per-cent. solution are administered hypodermically at intervals of from fifteen to thirty minutes.

The tolerance of the system for carbolic acid in this disease is said to be remarkable. The urine soon becomes smoky. The color, according to Brunton, is due to pyrocatechin and hydroquinone,—substances derived from carbolic acid,—and bears no relation to the danger of poisoning. The disappearance of the sulphates from the urine, however, is a sure indication of danger. Their presence can be determined by acidulating the urine with acetic acid and then adding barium chloride in excess, when we get a copious white insoluble precipitate of barium sulphate.

With regard to rational treatment of tetanus puerperalis, Kedarnath Das³⁶ thinks one must look to the following points: 1. To destroy the bacteria at the seat of infection by thoroughly antisepticing the parturient canal and by subsequently keeping it aseptic. 2. To eliminate the toxins already absorbed by brisk purgation and intracellular injection (under the breasts) of normal saline solution. 3. To overcome the symptoms induced by the action of toxins,—viz.: the increased reflex irritability of the higher nerve-centres,—and this is best

³³ Wiener Klin. Wochen., Nov. 29, 1901.

³⁴ Brit. Med. Jour., Mar. 30, 1901.

³⁵ N. Y. Med. Jour., July 20, 1901.

³⁶ Lancet, Apr. 27, 1901.

accomplished by keeping the patient absolutely quiet in an isolated place and by chloral in very big doses, given either per os if possible, per anum, or hypodermic injection of apomorphine, hyoscine hydrobromate, or morphine. 4. To neutralize the poison already absorbed and to immunize the body after local infection has taken place. Antitoxin treatment, Moscheowitz says, appears to have a distinctly beneficial influence on the course of tetanus, and the statistics he has collected show that with this treatment the general mortality of tetanus has been reduced from 90 to 40 per

cent. But the puerperal cases, taken separately, show no improvement in the percentage of recoveries. With regard to the question of immunizing the body after local infection has taken place, this would involve the injection of antitoxin as a prophylactic measure in all wounds when there is reason to suspect the possibility of the subsequent development of tetanus. By such treatment it is asserted that an extensive epidemic of puerperal tetanus in a lying-in hospital at Prague was cut short, and numerous instances of good results from a similar course have been recorded in veterinary practice.

Cyclopædia of Current Literature.

ACROPARÆSTHESIA AND OTHER ANGIONEUROTIC DISTURBANCES.

Acroparæsthesia, erythromelalgia, and the other many and varied vasomotor symptoms have certain features in common. 1. They are much more frequently met with in the female sex; something like 90 per cent. of these cases occur in the female patients. 2. Vasomotor conditions appear to be due to some inherent and very often inherited tendency in the patient, for they recur again and again in one form or another during the life of an individual. Thus, a patient may have migraine at one time, severe flushings at another, and syncopal attacks at another, though there is a tendency to a recurrence of the same disorder. There are, moreover, two epochs of life which are specially prone to their development, namely: puberty and the climacteric. 3. The onset of the symptoms, whatever they may be, is always more or less sudden. 4. They are in all cases paroxysmal:

i.e., they occur in the form of attacks. There is a sudden rise, when the symptoms soon reach their acme, followed by a gradual descent. In severe cases the attacks may be so frequent as to resemble a continuous malady, but close observation will detect that there are well-marked exacerbations. 5. In the great majority of the patients flushes or flush-storms occur from time to time during the patient's life; should these be absent, there are generally other evidences of vasomotor instability. 6. A great many of them—particularly of the vasodilator kind—are amenable to treatment of bromides, which relieves them, at any rate, for a time. T. D. Savill (*Lancet*, June 1, 1901).

AORTIC INSUFFICIENCY, PULSA- TION OF THE UVULA IN.

Much caution is necessary in the examination, as muscular movements produced by attempts at retching or swallowing may simulate pulsatile phenomena. The patient should be instructed

to hold the mouth open steadily and to breathe quietly.

It is well to make the examination both with and without the use of a tongue-depressor.

Two types of pulsation of the soft parts are distinguishable: a communicated movement, connected with the throbbing of the carotids, and usually affecting the tonsils and faucial arches; and an independent movement, brought about by a systolic increase in the volume of the tissues. This manifests itself in a rhythmical turgescence of the soft parts. Schlesinger has observed the pulsation in the tongue, both by inspection and by palpation. It may likewise be discernible in the half-arches and in the uvula. At times the posterior wall of the pharynx is pushed forward with each systole of the heart; in some cases the swelling is so marked as to produce a distinct rhythmical narrowing of the oral and pharyngeal cavities.

As a physical sign, pharyngeal pulsation has no special diagnostic value and possesses no greater significance than the capillary pulse. The knowledge of its existence merely adds one more point to be looked for in the critical study of a case. David Riesman (*Amer. Medicine*, June 15, 1901).

AORTIC MURMUR, REGURGITANT.

Diagnosis.—In at least 95 per cent. of the cases in which aortic reflux occurs the diastolic murmur is heard much more loudly at the second left interspace close to the sternum than in the position usually assigned to it, namely: the second right interspace.

There is no heart-murmur which more often eludes detection than regurgitant aortic murmur. Of course, the ordinary loud sound of a double aortic murmur is audible without the least difficulty, and

to this personal remarks do not apply. They are limited to that low-pitched, soft, aortic murmur which often accompanies, but does not replace, the second sound, and which is of evil significance.

Now, it is not said that the second left interspace close to the sternum is the locality in which the aortic reflux murmur is most loudly heard, but only that it is much more distinct there than in the position ordinarily assigned to it. The point at which the murmur is loudest is almost invariably the middle of the sternum, and it is frequently very loudly audible just above the xiphoid cartilage. H. W. Syers (*Brit. Med. Jour.*, June 1, 1901).

APPENDICITIS.

Surgical Treatment.—After a second catarrhal attack the operation for removal of the appendix when possible should be done after all acute symptoms have subsided, and after the patient has been carefully prepared for it. The diet for four days ought to consist of soups, barley-water, and white meats, avoiding milk and starchy foods. The bowels should be regulated so that they are thoroughly moved the day before operation. The usual arrangements for the preparation of the skin are carried out, 3 ounces of soup with a tablespoonful of whisky are given as a nutrient enema three-quarters of an hour before operation, and a subcutaneous injection of $\frac{1}{30}$ grain of strychnine, which materially diminishes shock, and this may be repeated in the middle of the operation if necessary. An incision, varying in length from 2 to 3 inches according to the stoutness of the patient, is made on the outer side of the rectus muscle over McBurney's point, dividing skin and fascia; the muscles are then separated, not cut, and the peritoneal cavity care-

fully opened in the usual way; a small sponge with string attached is introduced into the abdomen; all small vessels are then tied in order to get rid of the pressure forceps in the neighborhood of the wound, as they might bruise the bowel if it requires to be drawn out in the process of separating the appendix. Removing the sponge from the abdomen, the appendix is found in connection with one of the longitudinal bands passing downward, inward, or backward, and, with care, it is separated. At times it is so adherent that it is wiser to leave it alone and trust to the effect of the exploratory incision. Having separated the appendix and tied its mesentery, it is removed.

The after-treatment of patients who have had this operation performed is the same as is used in other abdominal cases. The patient is to be gently kept under the influence of morphine for two days, and only soups and barley-water (starvation diet) are to be given. After the bowels have been moved on the sixth day, a more generous diet is allowed, and in three weeks the wound will be firmly healed, and the patient be allowed to be on the sofa wearing an elastic bandage. At the end of the fourth week, if the wound has been small, walking about moderately is permitted, and gradually the patient resumes his ordinary work. Generally great improvement in health follows this operation. J. C. Renton (*Brit. Med. Jour.*, May 25, 1901).

CANCER, THE ALLEGED INCREASE OF, IN MASSACHUSETTS.

From a study of the alleged increase of cancer in Massachusetts one may say that:—

1. If death from cancer should go on at the apparent geometrical rate of increase of the past fifty years, in two and

a quarter centuries every person over thirty years would die from that disease.

2. This rate is probably only arithmetical at its worst.

3. The increase is probably due to better diagnosis and registration, and until the ratio of deaths over thirty years has reached 8 to 9 per cent., which is shown by autopsies to be the true rate for cancer, it is not justifiable to speak of the increase as inherent in the disease itself.

4. For purposes of comparison with other places or years, a "graphic picture," composed of both the rate and ratio curves, covering the period over thirty years, divided into decades, is the best.

5. Comparison with other states and countries shows the rate for Massachusetts to be about the same as theirs, with greater variation between the males and females than is the case in Austria, which is remarkable for the correspondence between the two sexes.

6. In the distribution in the New England States there is no geographical feature that explains the slight variation, which is easily within the limits of better registration.

7. In the State itself there is a slight increase westward for groups of counties of the same density of population. The densest populated part of the State, apart from these, shows a little higher rate. W. F. Whitney (*Boston Med. and Surg. Jour.*, July 18, 1901).

CIRCUMCISION.

In circumcising adults, if erection occurs it may displace the sutures; therefore the patient should be given large quantities of the bromides for at least six days, or until the wound has entirely healed. In many cases operated upon in the white race there may be noticed an

extravasation of blood into the connective tissue, between the skin and the deeper tissues; the penis may turn black over its entire surface; the scrotum may also turn black or dark in color. Such an occurrence need cause no serious alarm, for usually in a few days the extravasated blood is absorbed, leaving the parts their natural color.

After removing the tourniquet there is sometimes considerable oozing from the cut surfaces; but this is easily controlled by the application of hot water. Care should be taken in all cases to stop every particle of bleeding before applying sutures. It will be necessary to give a general anæsthetic, because cocaine has no effect whatever upon incised mucous membrane and skin.

The continuous suture is the best. In applying the sutures the best plan to follow is to begin first by introducing the needle into the raphé, then the frænum, and with a continuous suture pass entirely around the cut surfaces of the skin and mucous membrane.

Boric acid as dressing is better than iodoform in many respects, although some operators employ the latter.

These patients should be kept quiet, if possible for a day or two, when they may be allowed to go about, with instructions to report every few days until healing has taken place. W. R. Blue (*Pediatrics*, March 1, 1901).

DUODENAL ULCER.

In duodenal ulcer there are usually three main symptoms: the intestinal hæmorrhage, pain, and digestive disorder. The hæmorrhage occurs in three varieties: a fulminating or fatal form; an acute form, in which the hæmorrhage keeps on recurring and exhausts the patient; and a chronic form, in which the hæmorrhage is more or less continuous

and in which it may not be noticed. Pain is irregular both in situation and intensity; it usually appears two or three hours after a meal, and is situated within a space bounded by a line from the umbilicus to the margin of the false ribs and along the internal border of the rectus muscle and below the anterior border of the liver. Disorders of digestion are also variable. Dyspeptic troubles are less marked than in gastric ulcer. Ladevèze (*Jour. de Méd. et de Chir. Pratiques*, March 25, 1901).

ECLAMPSIA.

Treatment.—One has to treat: (1) a toxæmia; (2) an anæmia; (3) to control convulsions; (4) to control labor pains; (5) to control a hypersensitive nervous system; (6) to avoid causing cedema of the lungs, heart-failure, and high-tension pulse.

For the toxæmia, elimination by purgation with calomel, accompanied by magnesium sulphate in $\frac{1}{2}$ -ounce doses of the saturated solution. In antepartum cases this saline purgation, with an occasional dose of calomel, must be kept up until the child is born. One of personal cases carried on in this way after the patient had had eight convulsions for seven weeks, when a healthy child was born, and thrived. In two cases it happened that when the morning course of salines was omitted, owing to the bowels having moved early in the morning, convulsions came on again at night; in one of them, after the patient had been kept free from convulsions for a week. In case of unconsciousness, 2 minims of croton-oil may be introduced through a stomach-tube.

For anæmia the tincture of the acetate of iron with liquor ammonia acetatis or the unmodified Bland pill have answered very well.

For the control of the convulsions, morphine hypodermically is the most effective and safest remedy; $\frac{1}{2}$ grain followed by $\frac{1}{4}$ grain at intervals of an hour, if the patient continues restless.

The induction of premature labor is contra-indicated; but, if labor sets in, one should hasten it to the close under full anaesthesia.

In personal cases bromide and chloral have not proved satisfactory. Much more satisfactory have been the isolation of the patient and the cutting off of all peripheral stimuli.

Chloroform, chloral, and pilocarpine are contra-indicated in all cases. To prevent aspiration-pneumonia the patient should be turned on her side during the unconscious stage, and during the convulsion should be prevented from biting her tongue.

To reduce pulse-tension glonoin, in doses of 1 minim of the 1-per-cent. solution, has given good results.

Normal saline solution given subcutaneously acts very well as a diuretic. K. C. McIlwraith (*Canadian Pract. and Review*, June, 1901).

FURUNCULOSIS OF THE EXTERNAL AUDITORY CANAL.

Treatment.—Locally early incision of the furuncle is advocated and the application of an ointment which Dr. Barr recommends: Iodoform, 4 grains; menthol, 2 grains; vaselin, 1 drachm; smeared on cotton plugs, and introduced into the canal of the ear twice or thrice daily. Gruber's gelatin bougies containing morphine are also of service, more especially in the earlier part of the illness or if the patient will not allow the boil to be incised. Poultices generally do harm.

If the furuncle is not a primary condition, but occurs associated with some other lesion,—suppurative middle-ear

mischief, eczema of the canal, or plugs of cerumen,—these conditions would demand appropriate treatment. In furuncle associated with purulent otitis media, one is occasionally surprised to note how quickly the middle-ear discharge dries up after the inflammatory condition in the outer canal has been remedied.

The constitutional treatment of this affection is of prime importance. The dietary must be carefully regulated; starchy and sugary foods should be withdrawn. Tonics and aperients may be necessary. The aim in view should be a plain, wholesome, nourishing diet, with plenty of out-door exercise.

The tendency of bromides and iodides to produce a pustular eruption must be borne in mind. Alum and nitrate of silver applied locally are also said to favor their development. J. G. Connal (*Glasgow Med. Jour.*, July, 1901).

GELATIN AS A FOODSTUFF.

No matter how much gelatin be fed the tissue, proteid continues to be largely destroyed. A small quantity of gelatin has almost as great an effect as a large quantity.

There are records in the literature of cases where the feeding of commercial gelatin, which contains about 10 per cent. of proteid, will protect two-thirds of the waste of the body's proteid.

It seems that gelatin foods, like calf's-foot jelly and other jellies and gelatin-containing broths, can be used to advantage as accessory foodstuffs in diseases where there is high tissue-waste.

In typhoid fever, for example, there may come a time when milk is repugnant to the patient, and in this case gelatin food, which may easily be prepared sterile, has a beneficial action as an accessory foodstuff, and is at first eagerly taken, although as a constant diet it grows

wearisome. It is well to remember that small quantities are nearly as beneficial as large quantities, and that gelatin can never be entirely substituted for proteid food. Graham Lusk (N. Y. Univ. Bull. of Med. Sciences, Jan., 1901).

GLYCOSURIA, TOBACCO AS A CAUSE OF.

The habitual or excessive use of tobacco will not only aggravate an existing glycosuria, but it will, though less frequently, set up this condition. Tobacco influences the output of glucose in cases of glycosuria in three ways: First, by protracting the duration of transitory glycosuria and by imparting to alimentary melituria a certain degree of chronicity; secondly, by increasing the quantity of dextrose in the twenty-four hours' urine, in the transitory as well as the chronic forms of glycosuria; thirdly, by transforming the moderate degrees of chronic glycosuria into the graver forms. Nicotine is not the causative factor in tobacco-glycosuria. The substance in tobacco-smoke regarded as of greatest importance is the carbon monoxide due to the imperfect combustion. This view seems to find credence in the fact that glycosuria is only found in smokers of cigars, and not in those who use pipes. Heinrich Stern (Med. Record, Apr. 27, 1901).

HÆMORRHAGE, POST-OPERATIVE.

Conclusions regarding post-operative hæmorrhage are:—

1. In diagnosing post-operative hæmorrhage the operative history will aid much.

2. The symptoms of shock and those of hæmorrhage are very similar.

3. In suspected cases the cutting of a single stitch in the incision will tell.

HEART-LESIONS OF CHILDHOOD.

4. The surgery must be quick and decisive in these cases.

5. In cases in which bleeding is expected the tube should be used.

6. Large quantities of decinormal saline solution will save many patients. This should be used both per rectum and by injection into the veins.

7. Strychnine, belladonna, etc., will not control bleeding from a uterine or ovarian artery any better than from any other artery.

8. The surgeon should do what his surgical conscience tells him is right. Late researches in hæmatology make it appear that an internal concealed hæmorrhage may be demonstrated by a careful blood-count. This, it is stated, will show a decrease in the red cells and an increase in the white.

Very similar symptoms accompany shock from various causes, such as internal hernia, etc., none of which produce a change in the red cells. If an operation was performed for the relief of an inflammatory process, this test would lose its value in part, as there would exist at the time of operating a leucocytosis. Saline infusions apparently increase the white cells at first. A. H. Cordier (Jour. Amer. Med. Assoc., July 6, 1901).

HEART-LESIONS OF CHILDHOOD.

Treatment.—The prophylactic treatment of pericarditis and endocarditis depends upon the fact that the majority of these cases are rheumatic. The salicylates should be used thoroughly and early. Rest in bed should be insisted upon and begun early in the disease. The external application of an ice-bag is used by many. Some clinicians advocate the use of hot applications; these are particularly indicated for the relief of precordial pain. Counter-irritation in the form of mustard paste or the tincture

of iodine seems at times to give relief. To quiet the heart which is laboring as the result of endocardial or pericardial inflammation, small doses of aconite are sometimes employed. If, however, the heart's action is feeble, associated with cold extremities, or if there be the slightest suspicion that the patient is threatened with collapse, if there be cyanosis, or dyspnoea, aconite is contra-indicated in these cases. Opium in the form of Dover's powder or small doses of the alkaloids may be employed. When a large pericardial effusion causes interference with the heart's movement, aspiration should be resorted to. The needle is best inserted in the fifth intercostal space a trifle to the left of the sternum. It should be directed upward and toward the axillary line. After the valvular lesion has become chronic the patient should be placed upon a nutritious diet. When the heart begins to dilate, the compensation fails, cardiac stimulants are indicated. Digitalis, strophanthus, convallaria, and caffeine are used. One or 2 minims of the tincture of digitalis or strophanthus, given three or four times daily, usually brings about the sought-for results. Iron and arsenic are indicated for the anemia which is so frequently present. After the patient has sufficiently recovered to be out of bed, he should be in the fresh air as much as possible. Massage, hydrotherapy, and light gymnastics are of value. Violent exercise is contra-indicated. Severe mental work or worry, prolonged attention to studies, and school-work exert an injurious effect upon the heart disorders. I. A. Abt (*Medicine*, July, 1901).

INFANT-FEEDING, THE PLACE OF CEREALS IN.

To break up the curd of cows' milk

and furnish a small quantity of easily absorbable food, cereal gruels, in which the starch has been converted into dextrin and maltose, are the most practical and desirable agents. Recently it has been admitted that cereals give the finest curds of any diluent. How much effect a digested gruel has on the curdling of milk depends on the strength of the gruel and the dilution of the milk. The very best effect, as far as digestive effort is concerned, is obtained when the starch is completely gotten into soluble forms so that the particles of proteids and cellulose of the cereals are free.

To find what strength of the digested gruel was needed to prevent the formation of leathery curds, 3 heaping tablespoonfuls of wheat-flour, weighing 1562 grains, were cooked in a double boiler for two hours with 3 pints of water in the kitchen. This gruel was cooled so that it could be tasted (130° F.), and 1 teaspoonful of cereo, a glycerite of diastase, was added. At the end of ten minutes iodine failed to show starch.

It is not necessary to use a digested gruel stronger than 1 heaping tablespoonful of flour to the pint for any dilution of milk.

If when modified milk disagreed all milk was cut off for a few feedings, and then a new beginning made, a great deal less trouble would be experienced than by attempting to shift percentages slightly.

There is no form of nourishment so easily borne as predigested cereal gruels, and, when properly used, these are of great benefit, even when the infant is breast-fed.

If, instead of claiming that it is unscientific to give a baby anything but milk, the great advantage of temporarily withholding milk when it disagrees, and

feeding cereal gruels instead of proprietary foods was taught, and then to return to milk-feedings by gradually adding milk to these gruels, there would be less recourse to proprietary foods and more practitioners would learn to become scientific modifiers of milk. This method can be followed anywhere, and in no way interferes with the principle of shifting the percentages of fat, sugar, or proteids to suit the infant's digestion. In fact, this is exactly what should be done in every case.

The conclusions are that chemical analyses of milk are not the only scientific bases of comparison; that Nature adapts an animal's milk-food to its digestive system, and that cows' milk and woman's milk were intended for different digestive systems: that, as cows' milk forms solid curds and woman's milk flocculent curds, the curd of cows' milk intended for an infant should be broken up mechanically; that as cereal gruels mechanically break up the curds of cows' milk, and as infants are able to utilize them, their use is rational.

It is often preferable to make the standard diluent of digested gruels, as they not only break up the curds, but expose a surface of milk-proteids, and not starch, and furnish a certain amount of nourishment that is immediately available for carrying on the work of digestion, taking the place of part of the soluble proteids and also form a satisfactory substitute for milk when it must be withheld for a few feedings. A great variety of food can be supplied an infant by means of digested gruels at a trifling expense, and the tendency is always to get back to milk-feedings, and not to keep on indefinitely with a diet of carbohydrates, as when most infant-foods are used. H. D. Chapin (Med. Record, July 6, 1901).

INFECTIONS IN DISEASES OF WOMEN.

A few of the laws which seem to determine the rôle of the infections in diseases of women may be formulated tentatively as follows:—

1. The epithelial surface of the genital tract in its integrity is an efficient barrier against invasion of the underlying structures by pathogenic micro-organisms that establish parasitic and saprophytic relations to the vagina.

2. The normal cervix and its contained secretions are adequate barriers against invasion of the uterus by pathogenic bacteria that are capable of maintaining a habitat in the vagina.

3. The vagina possesses certain powers of self-disinfection, which work only against the organisms that are at once true parasites and facultative aërobes.

4. Certain pathogenic bacteria—notably the gonococcus of Neisser, the Klebs-Loeffler bacillus, and the *oidium albicans*—find, in the warmth and moisture of the genital epithelium, conditions favorable to their propagation and to the increase of their virulence whereby the epithelium itself may be destroyed, to the extent of losing its protective properties.

5. Pathogenic bacteria innocuously present in the genital tract may become virulent when introduced into the underlying structure through a breach in the protective epithelium.

6. Pathogenic bacteria when introduced into previously normal tissues immediately provoke the process called inflammation, the essential phenomenon of which is the speedy deposit and rapid extravascular migration of the leucocytes, which act as phagocytes in preventing the further invasion of the system.

7. Pathogenic bacteria that are not

thus overcome by the leucocytes may enter either the lymphatic or the sanguiferous circulation, producing secondary phenomena, septicaemia, pyæmia, and even the death of the patient. C. A. L. Reed (*St. Paul Med. Jour.*, June, 1901).

LARYNGITIS, ACUTE.

Treatment.—Abortive treatment is to be tried and the patient will be materially helped by the inhalation of soothing vapors, such as compound tincture of benzoin, vaporized with boiling water, and oil-sprays. If the patient's relief is sought after the attack has been in progress one or more days, by which time the inflammation has become somewhat sub-acute, very much can be done to relieve the hoarseness and cough by spraying the larynx with 5-per-cent. alumnol. followed by an oil-spray. Cocainizing the larynx and then spraying with 2- to 3-per-cent. nitrate of silver, while productive at the moment of considerable discomfort, materially hastens the progress toward recovery. The use of the galvanic current from 8 to 10 milliamperes, the sponge electrode being held on each side of the larynx and the current continued for about ten minutes, helps the effect of the preceding remedies. For the troublesome cough, preparations of ammonia, either in the form of muriate or the hypophosphite of ammonium, are especially serviceable; and, for the rasping, tickling cough, no sedative is so valuable as codeine in doses of from $\frac{1}{25}$ to $\frac{1}{5}$ grain combined with muriate of ammonia, and repeated as may be needed. G. L. Richards (*Inter. Jour. of Surg.*, July, 1901).

LEUCOCYTOSIS.

In the early recognition of septic processes—chiefly pyogenic—surgery can no longer disregard the value of the blood-

count, especially the estimation of the leucocytes.

The relative number of leucocytes in a given quantity of blood, or their proportion to the red corpuscles, can be readily determined by the use of the Thoma-Zeiss apparatus. It is essential in making these differentiations to bear in mind the normal conditions that at the sea-level the average number of red cells per cubic millimetre is 5,000,000 in men, and 4,500,000 in women, and 6,000,000 in the young and more vigorous adults, while the white cells average about 7500 per cubic millimetre for each sex.

Certain conditions not considered normal influence the number of leucocytes, since in the latter months of pregnancy they are moderately increased, and after parturition and during the early weeks of lactation a leucocytosis may be present without pathological significance. After hæmorrhage the leucocyte-count is increased, and in diphtheria, erysipelas, trichiniasis, all extensive forms of endometritis, and all acute pyogenic processes leucocytosis exists except in those cases where the vitality of the individual has been overwhelmed by the severity of the septic process, under which condition the leucocytes no longer respond to the demand for the protection of the tissues, and are not present in the superficial blood in even normal proportions. In a certain proportion of cases of infection temperature does not always indicate the increasing gravity of the lesion, while the degree of sepsis can be in great measure determined by the leucocyte-count. In impaction of feces, extra-uterine pregnancy, floating kidney, gall-stone colic, renal colic, ovarian neuralgia, intussusception, volvulus, internal hernia, twisted pedicle, etc., there is no leucocytosis unless complicated with an acute

septic process. In abscess of the liver the leucocyte-count ranges from 12,000 to 48,000, while there is a well-marked increase in all the septic pyogenic processes of the lungs and the pleura.

In osteomyelitis the leucocyte-count ranges, as a rule, from 15,000 to 25,000, and at times higher. Since, in the early stages of this disease, it is at times difficult by subjective symptoms to differentiate between rheumatism and gout, the leucocyte-count is invaluable in demonstrating at once the pyogenic process.

In trichiniasis the leucocytes register sometimes as high as 30,000, but the special feature is the presence of a large number of eosinophile cells, sometimes as high as 50 per cent., and in rare cases 67 per cent. of the total number of leucocytes being this form of corpuscle. C. A. L. Reed (N. Y. Med. Jour., June 8, 1901).

OVARIAN ORGANOTHERAPY.

Experience leads to the following conclusions, based upon the use of the American product of ovarian extract upon American women: 1. The employment of ovarian extract is practically harmless, as no untoward effects beyond slight nausea have been noted even when full doses have been administered. 2. In the treatment of amenorrhœa and dysmenorrhœa no good results were secured (although in some cases of amenorrhœa of obesity remarkable results have been obtained by the use of the thyroid extract). 3. The best results were seen in cases treated for the relief of symptoms of artificial menopause, when in a few instances the congestive and nervous symptoms were apparently ameliorated. 4. No appreciable result was noticed in the use of ovarin in the natural menopause. 5. No definite or exact reliance can be placed upon the drug, as it often

proves absolutely valueless where most positively indicated. 6. It is extremely problematic whether, in those cases in which relief was noted, the effect was not due to mental suggestion rather than to any physiological action of the drug. The neurotic type of individual demanding this treatment will often be relieved by any simple remedy. 7. In those instances in which effects were noted increase in dosage seemed to have little influence in maintaining the effect or preventing the patient from becoming accustomed to its use. 8. The theory which suggests the use of this extract seems to be at fault, and the administration of ovarin or ovarian extract is based upon a wrong assumption as to the function of the ovary. In organotherapy the best results have been obtained from the use of the thyroid and adrenal glands, and the ovary in function is in no sense analogous to these organs. Its principal function is ovulation, and, if any peculiar product is coincidentally manufactured, the isolation of this product has not yet been accomplished. Wilmer Krusen (Bull. Johns Hopkins Hosp., July, 1901).

PELVIC ABSCESS.

Differential Diagnosis.—Pelvic abscess will need to be differentiated from cyst, fibroid tumors, ectopic gestation, hæmatocele, malignant deposits, and appendicitis. One or more of these may exist at the same time with the abscess. A careful consideration of the history and septic symptoms will materially aid in the differentiation. In cyst and hydrosalpinx one will have an elastic or fluctuating tumor without indurated walls or septic history. Fibroid tumors will have a history of slow painless growth and profuse metrorrhagia. They are hard and nodular to the touch.

In ectopic gestation there is a history of amenorrhœa and suspected pregnancy, spasmodic pains, absence of fever, irregular hæmorrhage, and slow growth of the tumor.

Hæmatocele begins abruptly, with evidence of internal hæmorrhage, occurs at or near menstrual period, and is attended with little pain and no elevation of temperature. The tumor has a sensation as though it were filled with a semisolid material, and its walls are not indurated.

In malignant deposits the cervix is usually involved, ulcerated and bleeding readily on any irritation, bad-smelling sores or bloody discharge. The deposit is nodular, hard, and usually surrounds the entire cervix. Pain worse at night than in the day.

In appendicitis one will have to depend on the symptoms, history, and location. Usually the genital apparatus is not involved, and the pain is higher up. If, however, the appendix is low down, as it is in some cases, the two cannot be differentiated. R. M. Dunn (Texas Med. Jour., June, 1901).

PROSTATE, HYPERTROPHY OF THE.

From the results obtained by personal experience in 161 operations for the relief of senile hypertrophy of the prostate gland the conclusions here set forth have been found:—

1. Success following the Bottini operation depends on having perfect instruments, a good battery, the necessary skill, and the employment of a proper technic.

2. In suitable cases the Bottini is the safest and best radical operation thus far advised for the relief of prostatic hypertrophy.

3. It is often very efficacious in advanced cases of obstruction as a palliative measure, rendering catheterism easy

and painless, relieving spasm, lessening the tendency to constipation, and improving the general health.

4. It is of especial service in the beginning of obstructive symptoms due to hypertrophy of the prostate gland, and may be regarded as a means of preventing catheter-life.

5. It is indicated in all forms of hypertrophy except where there is a valvular formation, or where there is an enormous overgrowth of the three lobes associated with tumor-formation giving rise to a pouch, both above and below the prostate gland.

6. Where the bladder is hopelessly damaged, together with a general atheromatous condition of the blood-vessels, associated with polyuria, results are negative.

7. Pyelitis is not a contra-indication to a resort to the operation.

8. The character of the prostatic growth has no bearing on the results of the operation.

The ligation of the internal arteries for the relief of hypertrophy of the prostate gland, first recommended by Bier, has been tried by several surgeons with very unfavorable results. The benefit derived from the operation is slight, and the mortality higher than that following prostatectomy. Thus far, the results derived from angioneurectomy have been negative. Orville Horwitz (Phila. Med. Jour., June 22, 1901).

PRURITUS.

Treatment.—Carbolic acid has been recently used in several cases of generalized itching which had lasted over a period of months. In all of these cases there was improvement, amounting in one or two patients to a practical cure. The drug was given in 1- to 4-grain doses in sherry wine.

R Acidi carbolici, 24 to 72 minims.
Glycerini, 1 to 2 drachms.
Vini Xerici, q. s. ad 3 ounces.

M. Sig.: One drachm in water after meals.

In this form phenol is not at all unpalatable, and agrees well with the stomach. In one patient the appetite was distinctly improved by its use. No renal irritation was observed.

The drug acts as an antifermentative in the stomach and bowel, and also acts as a valuable intestinal antiseptic. Cases of pruritus due to intestinal autointoxication might readily be improved by the use of phenol. Phenol is eliminated through the sweat-glands, probably as carbolates. The contact of the drug with the skin may exert in this manner a certain antipruritic effect. J. F. Schamberg (*Therap. Gaz.*, June 15, 1901).

PUERPERAL SEPSIS.

Treatment.—The serum-treatment has no place in the routine treatment of puerperal sepsis; it should be used only in desperate cases after failure to obtain improvement by other and usually more efficient methods, and, if no improvement is shown after use for two or at most three days and the injection of 40 cubic centimetres to 60 cubic centimetres, it should be discontinued. Its use is not free from danger; it usually lowers the pulse and temperature, but at the same time it has a correspondingly depressing effect upon the patient; and it has not apparently lowered the mortality of the disease.

With regard to the general treatment of puerperal sepsis, early curettage of the uterus carefully performed as soon as the diagnosis is established is of primary importance, and the same result is not ac-

complished by any other method of procedure.

Following curettage, and sometimes in place of it in the mild cases, intra-uterine douches have proved to be of much value.

For constitutional treatment, one must mainly rely on stimulation, tonics, and forced feeding, with moderate diuresis and catharsis. F. A. Higgins (*Boston Med. and Surg. Jour.*, May 2, 1901).

Prevention and Methods of Treatment.

—The treatment of sepsis may be summarized as follows:—

1. Prevention by the exercise of the most careful asepsis and antiseptis.
2. The accurate study of each puerperal case to recognize the cause of high temperature and eliminate other factors than sepsis.
3. The maintenance of the vital forces and the promotion of elimination by the administration of diet and remedies to meet indications.
4. The employment of serum-injections when streptococic infection can be recognized or justifiably inferred.
5. Resort to operative procedures must be governed by the local manifestations. Curettement is rarely justifiable in pure sepsis. Peritonitis or localized cellular inflammation in the pelvis should indicate vaginal incision and drainage. Hysterectomy is indicated whenever the uterus can be recognized as the seat of localized collections. When the ovary or tube is involved, it should be removed. The recognition of a pus-collection should indicate its evacuation or the extirpation of the organ in which it is situated.
6. The continuance of symptoms of sepsis when local manifestations are not recognized will justify incision to determine the presence of secondary sources

of infection. E. E. Montgomery (*Amer. Med.*, Apr. 6, 1901).

PULMONARY TUBERCULOSIS, THE PULSE-RATE IN.

Allowing for the possibility of over-exertion, excitability under examination, and the presence of mitral stenosis, all of which accelerate the pulse-rate, the frequency of the pulse is a useful aid in the prognosis of pulmonary tuberculosis. A patient with a pulse-rate of over 100 is not likely to make any approach to recovery from pulmonary tuberculosis during six months. Cases in which a tuberculous area in the lung has been cleared out by excavation, followed by a period of quiescence, during which the cardiac pulsations may not exceed 84 per minute, are suitable for treatment, as there is likelihood that life will be prolonged considerably by six months' residence in a sanatorium. A pulse of 100 or more will usually be found to accompany an evening temperature reaching or exceeding 101 degrees, and these two signs, of grave import, being persistently present in a case in which absolute rest has been enforced for some time, give little hope of treatment proving of any avail. Thompson Campbell (*Brit. Med. Jour.*, June 1, 1901).

RECTUM, SARCOMA OF.

Symptoms.—Sarcomas occur in the rectum as irregular deposits beneath the mucous membrane, in shape being round, elliptical, and sometimes resembling an hypertrophied tonsil. They rarely, if ever, assume the smooth, plaque-like form of deposit such as is seen in carcinoma. The surface being always rough, unequal, "muriform," and the mucous membrane movable over the growth in its earlier stages, is a condition which distinguishes them from carcinoma.

They originate in the submucosa, and as they grow may appear as sessile tumors, and eventually develop a distinctly polypoid shape. They may also appear as a general fibrous thickening of the wall, and be mistaken for a simple inflammatory stricture.

The mucous membrane covering sarcoma is comparatively normal, although if the tumor becomes very large the membrane may become congested, oedematous, or ulcerated, and even adherent to the growth through inflammatory processes. Sarcomas in the rectum may occur single or multiple, and vary in size from that of a hazel-nut to a good-sized orange.

Sarcomas of the rectum present a variety of colors, generally that of the normal mucous membrane, although sometimes they are dark-red, grayish-black, bright-red, pale-yellowish-pink, or as black gangrenous masses. They may occur at any portion of the rectum or sigmoid, but the majority are situated low down near the anal margin.

Sarcomas differ from the carcinomas by their rapid growth. Differing from sarcomas in other portions of the body, these sarcomas are said to have a distinct tendency toward ganglionic infection. Metastasis is one of the chief characteristics of sarcomas of the rectum. Melanosis does not alter the type of the tumor or change the character of its component parts.

Symptoms are at first very vague. There may be a sense of fullness, or the feeling of the presence of a foreign body, or the first symptom may be bleeding and discharge of mucus. The protrusion of sarcomatous tumors is more frequent than that of carcinoma, but less so than in other forms of rectal neoplasms.

There is no odor peculiar to sarcoma. After ulceration has occurred and there

is a production of pus, the odor changes to that of decomposing tissue, but never assumes that peculiar, characteristic, and disgusting odor which is found in carcinoma of the rectum.

If the sarcoma is low down and involves the sphincter, producing traction and pressure, the patient may suffer considerable pain. But, if it is high up and of an infiltrating form, the patient may go to the very door of death without any knowledge of its existence.

The state of the bowels in sarcoma of the rectum varies according to the type of the tumor. There may be either constipation or diarrhoea. Flatulence, indigestion, and loss of appetite are associated with sarcoma of the rectum.

Cachexia is not well marked. Reflex digestive disturbances are noted. Decrease in strength, loss of flesh, and swelling of the feet and abdomen rapidly succeed one another, when the sarcoma is once well developed. Dysuria is frequently present. The lungs and pleura may become affected. J. P. Tuttle (*Cincinnati Lancet-Clinic*, June 22, 1901).

RHEUMATISM, ACUTE.

Etiology. — Sifting current investigation, it may be said that the true etiological factor of rheumatism is an infective microbe, most probably a diplococcus; that it has an affinity for serous membranes; and that this same diplococcus is the etiological factor in malignant rheumatic endocarditis, often in endocarditis valvularum, probably of chorea rheumatica, possibly in certain forms of pleuritis, and probably in some forms of peritonitis. This organism may not be the sole cause of acute polyarthritic rheumatism. That there may be others is to be inferred from the etiological relations of the gonococcus. F. W. Mann (*Medicine*, July, 1901).

RHEUMATISM TREATED WITH ACETYL-SALICYLIC ACID (ASPIRIN).

Aspirin has only a slight taste and can be easily administered, being given diluted with sugar and water on a spoon or in milk. As it is insoluble in acid fluids, it passes unaltered through the stomach into the intestinal canal, where it is decomposed and absorbed in the form of nascent salicylic acid.

Aspirin shortens the course and severity, and relieves the pains in rheumatism. It does not act as the salicylates do on the stomach, and does not produce tinnitus or headache. It seems to reduce temperature, and has no bad effects on the heart or nervous system. C. A. Protin (*Merck's Archives*, July, 1901).

SIDONAL IN GOUT.

Sidonal is a preparation made by the combination of kinic acid and piperazin. Weiss discovered that this substance was capable of diminishing the formation of uric acid in the body, and Blumenthal showed that this reduction in the excretion of uric acid was real, and not merely due to its retention in the system. When 75 to 120 grains are given in twenty-four hours, the excretion of uric acid sinks 30 to 50 per cent. Von Leyden, Ewald, and Goldscheider report favorable results with their use of sidonal in gout, and Mylius has confirmed their statements. The latter found it worked advantageously in cases which resisted all other modes of treatment. It alleviated the pains, rendered motion less difficult, and shortened the duration of the attack. Improvement began after about four days instead of in three to four weeks. Seventy-five to 120 grains of sidonal were given daily at first, but later it was prescribed in much smaller doses. It was satisfactory not alone in the acute, but in the chronic cases as well. In

other instances Mylius felt convinced that when he gave 75 grains at the very beginning of an attack he aborted its course, so that it was in a sense prophylactic.

The appetite appears to be affected only favorably, and Mylius noted no unpleasant or dangerous consequences from the use of the drug. E. P. Joslin (*Boston Med. and Surg. Jour.*, July 11, 1901).

TANNOFORM AS A PREVENTIVE OF HYPERIDROSIS AND SORE FEET.

Tannoform mixed with two parts of talcum may be applied by rubbing it in well between the toes and over the foot. The prophylactic treatment of hyperidrosis with tannoform must extend over a period of at least eight days; but then one may be certain that for weeks to come those so treated—at least the greatest majority—will not suffer with sweating of the feet. The best time to apply tannoform is on going to bed. A preliminary foot-bath before each application is desirable, but not absolutely necessary. The bad odor of the feet disappears just as surely as the sweat itself. The drug is considered absolutely innocuous. Surgeon-Major F. Merz (*Canadian Jour. of Med. and Surg.*, July, 1901).

THYROID EXTRACT.

The thyroid extract is a powerful alterative. Its use is likely to be of service, however, only in those diseases which are in some way related to partial or total suspension of the thyroid function. Its action is almost specific in myxedema, sporadic cretinism, and the cachexia which follows the extirpation of the thyroid gland. Its use in insanity is in some degree justified rationally on the

ground that in that disease altered glandular action and disordered metabolism are almost universally found.

Thyroid is a constant ingredient in antifat remedies, and M. Porges has made extensive experimentation in this regard. He finds that the majority of cases show no improvement whatever, while the few—and those are those cases which readily show the physiological action of the remedy—experience some benefit. He thinks that in these cases the fatness, in some measure at least, is due to the defective action of the thyroid gland, and hence the exhibition of the thyroid extract is highly rational. On the whole, he condemns its use in this class of patients, as the benefits derived are not worth the hazard undergone while taking the treatment.

It has been tried in many forms of skin disease, both internally and as a local application. The results reported are variable. Scleroderma, psoriasis, eczema, and ichthyosis are said to do well occasionally, and of late very encouraging reports of it have been noted in stubborn cases of diffuse eczema. Externally it has been tried in various forms of chronic ulcer, but the reports of results have not been such as to show that it had any special value for this purpose. De Lacc reports a case of severe purpura in which thyroid effected a complete cure.

As an emmenagogue it has repeatedly succeeded when other means had failed; but when given for this purpose solely it seems to be useless. In cases of insanity where the menstrual function was in abeyance, when the remedy ameliorated the patient's general mental and physical condition, return of the menses was among the other signs of improvement. But in no case was menstruation re-established as the only apparent result

of the treatment. In exophthalmic goitre, with or without mental symptoms, it seems to be positively harmful. Hiram Elliott (Brooklyn Med. Jour., Apr., 1901).

TUBERCULAR INFECTION THROUGH AIR-PASSAGES.

From various points of observation, one is compelled to view with strong suspicion as a probably frequent focus of tubercular infection that ring of lymphoid tissue which surrounds the naso-pharynx—the cross-roads where the food- and air- ways pass each other. So far as the faucial tonsils are concerned, infection could, of course, take place either from organisms deposited there (in mouth-breathers) by ingested food or by inspired air. In the naso-pharynx it can only be on rare occasions that infected food can contaminate the “third” tonsil. It is concluded that the commonest mode of tubercular infection is by inhalation, and that the inhaled bacillus has infected the system *before* the air-current has reached the larynx—most probably through the lymphoid tissue of the naso-pharynx and pharynx. There appears to be no justification for the generally accepted idea that the bacillus is inhaled directly into the pulmonary alveoli. St. Clair Thomson (Practitioner, July, 1901).

TUBERCULOSIS IN CHILDHOOD.

The commonest mode of tuberculous infection in childhood, and especially in infancy, is by inhalation; and, if it be asked why the liability to pulmonary affection should be so much greater during the first two or three years of life than in the later years of childhood, there is at least a striking analogy in the age incidence of bronchitis and pneumonia.

There is good reason for believing that there is some special vulnerability of the respiratory tract during the first five years of life, and hence, although exposure to infection by contaminated air may be shared equally by all ages, it is in fancy and early childhood that such exposure is most often followed by a tuberculous lesion either in the lung or in the lymphatic glands about the air-passages.

This susceptibility to pulmonary infection must be regarded as the chief cause of the special incidence of tuberculosis on infancy and early childhood, and next in importance—but *longo intervallo*—is the liability of this age to milk-infection.

There is, however, a third factor which is almost peculiar to this age, namely: the frequency of ear infection. The tubercle bacillus in these cases probably passes up the Eustachian tube from the naso-pharynx, but whether from the food or from inhaled air it would be difficult to decide; perhaps, inasmuch as air is continually passing through the naso-pharynx, a part which food-carried bacilli would only reach indirectly, it is most likely that the bacillus enters with the air.

Apart from the channels of infection, there are two predisposing causes which play no small part in determining the heavy incidence of tuberculosis on early childhood; they are measles and whooping-cough. For children who are predisposed to tuberculosis by heredity, an important part of the prophylaxis against tuberculous disease is the guarding against exposure to the infection of measles or whooping-cough; and probably much may be done to avert the onset of tuberculosis after an attack of measles or whooping-cough by sending the child away for a time into the pure

air of country or sea-side. G. F. Still (Practitioner, July, 1901).

URINARY BLADDER, TOTAL EXTIRPATION OF.

From a study of total extirpation of the urinary bladder one may conclude that:—

1. Until a more satisfactory plan of disposal of the ureters is found cystectomy should never be undertaken for conditions other than exstrophy, when partial extirpation of the organ is possible. Even a very small portion of the bladder into which the ureters may be debouched is practically free from the great danger of infection incident to bowel-grafts, and, further, such disposition of the ureters is more easily executed.

2. For exstrophy the Maydl and the Pozzi operations are quite satisfactory, though the danger of infection seems ever present.

3. Rectal graft of the ureter in its continuity and skin-grafting of this duet are highly dangerous.

4. Uretero-vaginostomy is practically free from ascending infection, though it gives far from perfect results.

5. The urethral graft of the ureter seems free from infection, but the constant dribbling of urine is but slightly ameliorated by the use of a urinal.

6. The Mauclaire-Gersuny operation is worthy of a further application, inasmuch as it provides for both sphinctered bladder and bowel. J. Wesley Bovée (Amer. Medicine, July 13, 1901).

Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following monographs:—

The Complications and Degenerations of Fibroid Tumors of the Uterus as Bearing upon the Treatment of These Growths. By Charles P. Noble, Philadelphia, 1901.—A New Clinometer for Measuring Torsional Deviations of the Eye, Delimiting Paracentral Scotomata and Metamorphopsia and Detecting Simulation of Blindness. By Alexander Duane, New York, 1901.—What Routine Shall we Adopt in Examining the Eye-muscles? By Alexander Duane, New York, 1901.—De La Tricophytie du Conduit Auditif Extérieur. Par le Dr. Louis Bar, Nice, 1901.—Cas Rares de Polypes du Larynx. Par le Dr. Louis Bar, Nice, 1898.—Un Cas de Neurasthénie Syphilitique. Par le Dr. Georges Bogdan, Jassy, 1901.—Sur Deux Cas Peu Communs de Mort Subite chez Deux Enfants en Bas Age. Par le Dr. Georges Bogdan, Jassy.—Viability of the Bacillus Pestis. By M. J. Rosenau, U. S. Marine-Hospital Service, Washington, D. C., 1901.—American Breeds of Fowls. 1. The Plymouth Rock. By T. F. McGrew, U. S. Department of Agriculture, Washington, D. C., 1901.

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Cyclopædia of the Year's Literature.

TUBERCULOSIS.

Diagnosis.—In two hundred consecu-
tive specimens of sputa examined bac-
teriologically by J. O. Symes,¹ tubercle
bacilli were detected in 50 per cent. In
early stages of phthisis and in the acute
disseminated variety tubercle bacilli may

not be present in the expectoration, there
being as yet no breaking down in the
lung. Students often fail because they
prepare too few specimens, and examine
these too superficially.

¹ Brit. Med. Jour., Feb. 23, 1901.

It is impossible to gauge the severity of the disease by the number of bacilli in a given specimen; but, on the other hand, if the patient's sputum be systematically examined at definite periods during the illness, the progress toward recovery will be seen to be marked by a steady diminution of the tubercle bacilli.

In the examination of serous fluids, pus, or sections of tissues the margin of error is very great if reliance be placed on negative results. A positive result is conclusive, but this can seldom be arrived at without inoculation experiments. Even if inoculation be resorted to, the possibility of error is not eliminated, for the quantity of centrifugalized material inoculated into a guinea-pig is very small.

In actual practice the only bacillus which is likely to be mistaken for the tubercle bacillus is the smegma bacillus, and this has recently been shown to have a wider distribution than was formerly thought. For this reason the examination of urine for tubercle organisms is useless unless the water be drawn off with aseptic precautions, and unless the films be (subsequent to decolorization with acid) allowed to soak in alcohol for at least thirty minutes.

The conclusions regarding the morphological and physical variations of the bacillus tuberculosis and its relations (*a*) to other acid-fast bacilli, and (*b*) to the ray-fungus and other streptothricæ are given by William Bulloch² as follows:—

1. So far as is known, the bacillus tuberculosis discovered by Koch is the only immediate cause of all forms of human tuberculosis.

2. In the majority of cases the micro-organism is met with in the form of slender rods, which frequently show clear spaces in their interior.

3. Under certain conditions, at present imperfectly understood, the micro-organism may show filaments, true dichotomous branching, and club-formation, and, in the tissues, especially in experimental tuberculosis, it may assume a radiate arrangement: characters which from a taxonomic point of view bring it into close relation with a large group of micro-organisms variously designated streptothricæ, oöspora, nocardiacæ, and more recently actinomycetes (Lachner-Sandoval).

4. According to all experience, the tubercle bacillus is an aerobic facultative parasite which grows extremely slowly outside the body, and for its growth requires a relatively high temperature, the minimal and maximal limits of which are 29° C. and 42° C. This fact is against the supposition that the tubercle bacillus multiplies extracorporeally, at least in temperate climates.

5. In general, cultures are difficult to obtain, and are best prepared by growing the organism upon relatively complicated media, such as blood-serum. The addition of glycerin to all media undoubtedly favors the development and luxuriance of the cultures. In the presence of this substance, however, good growths can be obtained in vegetable media, such as potato (Pawlowsky, Lubinsky, and others). It is also possible to obtain growths on media which contain no proteid material, the carbon and nitrogen demands of the organism being fulfilled respectively by ammonia salts and glycerin. Hitherto in such simple media it has not been possible to replace the glycerin by other allied compounds (Proskauer and Beck).

6. With ordinary hydro-alcoholic solutions of basic aniline colors the tubercle

² Phila. Med. Jour., Aug. 17, 1901.

bacillus is stained with extreme difficulty and imperfectly. If certain substances (aniline, para-toluidin, meta-toluidin, benzaldehyde, carbolic acid—in practice the latter is chiefly used) are added to the basic dyes, the penetrating power of the latter for the tubercle bacillus is increased in high degree, and on subsequent treatment with mineral acids (33-per-cent. nitric acid, 25-per-cent. sulphuric acid) the color remains in the bacilli, so that they stand out prominently from other objects in whose association they may be. This “fastness” toward acids (*säurefestigkeit*), discovered by Ehrlich, has had a great influence on the development of the study of tuberculosis, and at the present day the microscopical diagnosis is made with this method alone.

7. The acid-fastness is, however, not specific to the tubercle bacillus, but is also possessed by a considerable number of other bacilli, some of which are pathogenic for man (*bacillus lepræ*), some for animals. In recent times the number of these have been considerably increased, and although they have been found as saprophytes, and capable of living at relatively low temperatures, they may produce tubercle-like diseases in animals.

8. The microscopical diagnosis alone is not sufficient to differentiate the true tubercle parasite from other “acid-fast” organisms. There is every reason to believe that the bacillus of human and that of bovine tuberculosis are identical. The bacillus of avian tuberculosis presents points of difference, but these are not differences of species. There exists a group of acid-fast, tubercle-like bacilli widely distributed in Nature. The identity or non-identity of these with Koch’s bacillus is not proved.

9. In any case a microscopical diag-

nosis of Koch’s bacillus, especially in objects which are from their nature and source liable to contamination with other acid-fast bacilli, is not decisive by itself.

10. Even the application of alcohol subsequent to acid is not capable of differentiating the tubercle bacillus from others like it. Some tubercle-like bacilli may be as *säurefest* and *alcoholfest* as Koch’s bacillus.

11. Contrary to former beliefs, the acid-fastness is not due to the presence of *fat* in the bacillus, as, after complete removal of this substance, the bacilli are still acid- and alcohol- fast. The acid-fastness is due to a body of the nature of a wax (Aronson), which can be extracted by acid-alcohol-ether, boiling chloroform, or boiling benzene. This wax in itself is powerfully acid-fast, but is unstainable by fat-stains (sudan III and ponceau R).

12. Besides wax and fat, which are present in relatively large amounts, the tubercle bacillus is composed of proteids (important among which is a variety of nucleic acid, described as tuberculinic acid—Ruppel) and salts (with phosphates predominating). After the removal of all proteids, wax and fat, a substance remains which contains a considerable quantity of nitrogen, and from its reactions is probably chitin or some allied body.

13. No certain facts are known of the possession or non-possession by the tubercle bacillus or other acid-fast bacilli of true endospores. Although the tubercle bacillus is more resistant to injury than non-sporing microbes, it is much less resistant than true endospores.

Alfred Moeller³ says bacteria resembling the tubercle bacillus, and known to us for years, are the *lepra bacillus*,

³ *Lancet*, July 27, 1901.

smegma bacillus, and the organism of avian tuberculosis; but the lepra and smegma bacilli are of relatively rare occurrence, and little is known of their cultural growth, and the avian and cold-blooded mammalian tubercle bacillus are unimportant as regards differential diagnosis. There are, however, grass bacilli as a primitive form, with its varieties, milk and butter bacilli, and manure bacilli, which are important from a diagnostic stand-point. With respect to color-reaction, they all, with slight deviations, behave like the tubercle bacillus. The same may be said of their morphology. Though in form the different species vary more or less, it is often impossible microscopically, under certain conditions, to distinguish them from the tubercle bacillus, and the tubercle bacillus itself varies according to the nutritive medium that it finds. B. Fränkel first drew attention to the fact that the tubercle bacillus in the florid form of tuberculosis generally took the form of short rods. Those forms which deviate from the ordinary bacillus shape, such as rodlets, ramifications, keel-shaped swellings, as well as oval patches in the middle of the bacillus which will not stain, deeper-dyed granules, etc., are met with in the tubercle bacillus, as well as in other bacteria resistant to acids. In cultural growth, however, the grass bacilli differ materially from the tubercle. In the first place, in the appearance of the cultures; even when now and then a more or less close resemblance has been attained through the methods of cultivation, the tuberculosis culture shows such characteristics uniformly, so that it is easy to distinguish it from all the others. Then it stands apart in its subtle behavior with regard to temperature. While other bacteria resistant to acids thrive at room-temperature, the tubercle

bacillus requires incubation-temperature. The position of the tubercle bacillus is unique with respect to its excessively slow growth. Other bacteria resistant to acids form visible colonies at the latest after twenty-four hours at incubation-temperature, while the earliest moment that growth has been observed in the tubercle bacillus is only after several days, even under the most favorable conditions of frequent transplantation on specially chosen nutritive media. This exceptional behavior of the tubercle bacillus is very valuable from a differential-diagnosis point of view. Several authors say that sometimes bacilli resistant to acids were found in the sputum in morbid conditions of the respiratory organs—*e.g.*, in gangrene of the lung—which, on closer examination, did not prove to be genuine tubercle bacilli. Fränkel and Pappenheim proved this by dissection; Rabinowitsch proved conclusively, by pure culture of the bacteria, that it was probably a variety of the butter bacillus. Personally these pseudotubercle bacilli have been frequently found not only in sputum from the lungs, but also in mucus from the nose and pharynx, coating of the tongue, sordes on the teeth, and secretion on the tonsils.

In those cases in which physical symptoms are entirely absent, and the suspicion of tuberculosis is based on the existence of bacilli resistant to acids in the secretion of the respiratory organs, the diagnosis may be confirmed by the following simple method based on the slow growth of the tubercle bacillus and its peculiar temperature requirements: The secretion in question is mixed with nutritive bouillon, and kept at about 30° C. If there is a visible increase in the bacteria resistant to acids, it is certain that it is not the genuine tubercle bacillus. Sometimes in the tubercle ba-

cillus the sputum, mixed with certain nutritive media, increases at incubation-temperature. This proliferation, due in all probability to the importation of globulin-like substances from the body, is, however, exceedingly small and ceases altogether after, at the latest, forty-eight hours; while in the pseudotubercle bacilli a persistent further proliferation takes place at 30 degrees. There was no pathogenic effect noticeable either in the bacteria isolated by Rabinowitsch in gangrene of the lung or in those personally found in mucus from tonsils, nose, and pharynx.

Different occurrences in practical life bring out the differentiation of pseudotubercle bacilli from genuine tubercle bacilli even more than at the sick-bed. For years two of the most important articles of food—milk and butter—were looked upon with lively horror because all the bacteria resistant to acids they contained were supposed to be tubercle bacilli. The isolation of manure bacillus showed the untenableness of the conclusion that the proof of bacteria resistant to acids in the excrement of cattle was undoubtedly due to the existing bovine tuberculosis in the animals concerned. As regards pathogenesis, all bacteria resistant to acids have this in common, that they cause a tuberculous-like disease in the usual animals experimented on, the genuine tubercle bacillus always, but the pseudotubercle bacillus only in a limited number of cases and under certain conditions. The whole appearance of pseudotuberculosis in the bodies of animals bears macroscopically frequently a striking resemblance to genuine tuberculosis. But in the tubercles themselves there is a visible difference: while the genuine tubercles are of a solid proliferating kind, the pseudotubercles are of a more inflammatory character,

with tendency to abscess-formation. The typically histological condition of genuine tuberculosis—giant-cells, epithelioid cell-nests, caseation—is only met with in pseudotuberculosis in very rare cases, when under given conditions, the bacilli are introduced into the bodies of animals. Another peculiarity of the tubercle bacillus is, if, together with butter, it is injected intraperitoneally into animals typical tuberculosis does not result, but peritonitis sets in, accompanied by severe formation of induration, exactly the same as follows the injection of pseudotubercle bacilli and butter.

E. O. Otis⁴ presents 62 tests with tuberculin, undertaken with two objects in view, namely: (1) to determine how many cases of known syphilis react to tuberculin, and (2) to determine how reliable the test is in suspected or incipient tuberculosis both of the lungs and of other organs or portions of the body. The tuberculin used was Koch's original, imported and diluted as used to a 1-per-cent. solution, $\frac{1}{10}$ cubic centimeter of which solution being 1 milligramme of the original product.

In none of the cases herewith reported were there any serious or alarming symptoms as a result of the injection. No injurious results follow the diagnostic test of tuberculin in doses up to 10 milligrammes. There was invariably a little soreness complained of at the point of injection for one or two days following. In most cases the general reaction only was depended upon, but there are some few cases of tuberculosis which, for some reason or other, do not give any general reaction, but do give a marked and definite local one. The dose was 2, 5, 7, or 10 milligrammes, never over 10. All the

⁴ Med. News, Aug. 24, 1901.

cases were practically afebrile at the time of the injection.

If from six to twenty-four hours after the injection there was a rise of temperature and the patient complained of marked weakness, sensations of heat and cold, nausea or anorexia, pain in the back and limbs, headache, sweating, either sleeplessness or somnolence, a general "miserable" feeling, a reaction was considered to have taken place. Sometimes a slight rise of temperature was accompanied by marked constitutional disturbance. Each patient was given a thermometer to take home and requested to hold it under the tongue for five minutes at six o'clock at night, upon going to bed and in the morning on getting up, and then to report the following forenoon.

The diagnosis of syphilis was carefully made by Dr. C. M. Smith.

Thirty-five cases of the tuberculin test in syphilis are noted. The smallest amount of tuberculin used was 2 milligrammes, the largest 10 milligrammes. There were 6 undoubted reactions and 5 abortive reactions, in which there were temporary symptoms of a reactive nature, but which could not be called genuine reactions. Considering only the 6 undoubted reactions, one has 17 per cent. of reactions; including the abortive cases, there are 31 per cent.

In using the tuberculin test one must always bear in mind the fact that syphilis at whatever stage does give a reaction. Further, there does not seem to be any guide in the activity or quiescence of the syphilitic infection as to whether or not a reaction is likely to occur.

Twenty-six cases of suspected or proved tuberculosis gave some interesting and perplexing results. Taking the 8 cases in which the physical examination showed sufficient evidence of tuber-

culosis or in which tubercle bacilli were found in the sputum, there were 4 reactions and 4 failures to react. In the 3 cases in which tubercle bacilli were found in the sputum, 2 did not react; in 1 of these 7 milligrammes were used, and in the other 5 and 10 milligrammes. In the third case in which 2, 5, and 8 milligrammes of tuberculin were successively used, only a local reaction was obtained. Of the remaining 18 cases of suspected tuberculosis, there were 6 reactions and 12 failures to react. In no one of those cases which failed to react could tuberculosis be more than suspected, with greater or less probability, by the physical examination. A case of lupus of the face, besides giving a general reaction, showed a very pretty local one. In a case of chronic laryngitis in which either syphilis or tuberculosis might have been the cause, a reaction was obtained, thus leaving the origin doubtful as before. In using the tuberculin test for suspected tuberculosis experience would teach one to look carefully for syphilis.

Etiology.—Robert Koch⁵ says the sputum of consumptive people is to be regarded as the main source of the infection of tuberculosis. The question now arises whether there are not other sources, too, copious enough to demand consideration in the combating of tuberculosis.

Another possibility of tuberculous infection exists, as is generally assumed, in the transmission of the germs of the disease from tuberculous animals to man. In order to decide it, experiments have been personally carried out during the last two years along with Professor Schütz, of the veterinary college in Berlin.

⁵ Brit. Med. Jour., July 27, 1901.

A number of young cattle which had stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were infected in various ways with pure cultures of tubercle bacilli taken from cases of human tuberculosis; some of them got the tuberculous sputum of consumptive patients direct. In some cases the tubercle bacilli or the sputum were injected under the skin, in others into the peritoneal cavity, in others into the jugular vein. Six animals were fed with tuberculous sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of bacilli, which were distributed in water, and scattered with it in the form of spray. None of these cattle (there were 19 of them) showed any symptoms of disease, and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found. Only at the places where the injections had been made small suppurative foci had formed, in which few tubercle bacilli could be found. This is exactly what one finds when one injects dead tubercle bacilli under the skin of animals liable to contagion. So the animals experimented on were affected by the living bacilli of human tuberculosis exactly as they would have been by dead ones; they were absolutely insusceptible to them.

The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. After an incubation-period of about a week the severest tuberculous disorders of the internal organs broke out in all the infected animals. It was all one whether the infecting matter had

been injected only under the skin, or into the peritoneal cavity or the vascular system. High fever set in, and the animals became weak and lean; some of them died after a month and a half to two months, others were killed in a miserably sick condition after three months. After death extensive tuberculous infiltrations were found at the place where the injections had been made, and in the neighboring lymphatic glands, and also far advanced alterations of the internal organs, especially the lungs and the spleen. In the cases in which the injection had been made into the peritoneal cavity the tuberculous growths which are so characteristic of bovine tuberculosis were found on the omentum and peritoneum. In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis.

An almost equally striking distinction between human and bovine tuberculosis was brought to light by a feeding experiment with swine. Six young swine were fed daily for three months with the tuberculous sputum of consumptive patients. Six other swine received bacilli of bovine tuberculosis with their food daily for the same period. The animals that were fed with the sputum remained healthy and grew lustily, whereas those that were fed with the bacilli of bovine tuberculosis soon became sickly, were stunted in their growth, and half of them died. After three months and a half the surviving swine were all killed and examined. Among the animals that had been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck, and in one case a few gray nodules in the lungs. The animals,

on the other hand, which had eaten bacilli of bovine tuberculosis had, without exception (just as in the cattle experiment), severe tuberculous diseases, especially tuberculous infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and the spleen.

The difference between human and bovine tuberculosis appeared not less strikingly in a similar experiment with asses, sheep, and goats, into whose vascular systems the two kinds of tubercle bacilli were injected.

These experiments are not the only ones that have led to this result. If one studies the older literature of the subject, and collates the reports of the numerous experiments that were made in former times by Chauveau, Günther and Harms, Bollinger, and others, who fed calves, swine, and goats with tuberculous material, one finds that the animals that were fed with the milk and pieces of the lungs of tuberculous cattle always fell ill of tuberculosis, whereas those that received human material with their food did not. Comparative investigations regarding human and bovine tuberculosis have been made very recently in North America by Smith, Dinwiddie, and Frothingham, and their result agreed with the above.

Considering all these facts, it may be maintained that human tuberculosis differs from bovine, and cannot be transmitted to cattle.

But, now, how is it with the susceptibility of man to bovine tuberculosis? It is impossible to give this question a direct answer, because the experimental investigation of it with human beings is out of the question. Indirectly, however, one can try to approach it. It is well known that the milk and butter con-

sumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition, as the numerous infection experiments with such dairy products on animals have proved. Most of the inhabitants of such cities daily consume such living and perfectly virulent bacilli of bovine tuberculosis, and unintentionally carry out the experiment which one is not at liberty to make. If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of aliments containing tubercle bacilli could not but occur among the inhabitants of great cities, especially the children. Most medical men believe that this is actually the case.

In reality, however, it is not so. That a case of tuberculosis has been caused by aliments can be assumed with certainty only when the intestine suffers first: that is, when a so-called primary tuberculosis of the intestines is found. But such cases are extremely rare. Among 933 cases of tuberculosis in children at the Emperor and Empress Frederick's Hospital for Children, Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3104 necropsies of tuberculous children, Biedert observed only 16 cases of primary tuberculosis of the intestine. It is by no means certain that these few cases were due to infection by bovine tuberculosis. It is just as likely that they were caused by the widely-propagated bacilli of human tuberculosis, which may have gotten into the digestive canal in some way or other. Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin. Now one can diagnose them. All that is necessary is to cultivate in pure culture the tubercle

bacilli found in the tuberculous material, and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them. For this purpose, subcutaneous injection, which yields quite specially characteristic and convincing results, is recommended.

Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. It is estimated that the extent of the infection by the milk and flesh of tuberculous cattle, and the butter made of their milk, is hardly greater than that of hereditary transmission, and therefore it is not deemed advisable to take any measures against it.

So the only main source of the infection of tuberculosis is the sputum of consumptive patients, and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion.

John McFadyean⁶ states that opinions have varied as to the frequency with which the transmission of tuberculosis from one species to the other occurred, but practically never within the last eighteen years regarding the possibility and probability of such reciprocal infection. What are the grounds upon which we are asked to discard convictions that appeared to rest on such a solid basis? He endeavors to state them briefly, as he understands Professor Koch's train of reasoning. 1. The bacilli found in cases of bovine tuberculosis are much more virulent for cattle and other domestic quadrupeds than the bacilli found in cases of human tuberculosis. 2. This

difference is so marked and so constant that it may be relied upon as a means of distinguishing the bacilli of bovine tuberculosis from those of the human disease, even assuming that the former may occasionally be found as a cause of disease in man. 3. If bovine bacilli are capable of causing disease in man there are abundant opportunities for the transference of the bacilli from the one species to the other, and cases of primary intestinal tuberculosis from the consumption of tuberculous milk ought to be of common occurrence. But post-mortem examination of human beings proves that cases of primary intestinal tuberculosis are extremely rare in man, and therefore it must be concluded that the human subject is immune against infection with the bovine bacilli, or is so slightly susceptible that it is not necessary to take any steps to counteract the risk of infection in this way.

Now, it may be submitted that at least one of the premises contained in this argument is not well founded, that the others have little or no bearing on the question, and that there still remain reasonable grounds for regarding tuberculous cows' milk as distinctly dangerous to human beings.

It cannot be denied that what may be called bovine-tubercle bacilli are, as a rule, distinctly more virulent for cattle and other domesticated animals than are human bacilli, or that the results of experiments indicate that in natural circumstances there is little danger of cattle becoming infected from human beings. But it cannot be admitted that the low virulence of human bacilli for cattle proves, or even makes it probable, that bovine bacilli have only a feeble pathogenic power for man. That might have

⁶ Lancet, Aug. 3, 1901.

been held to be probable if it had been shown that bovine bacilli were very virulent only for cattle, but since it is well established that these bacilli are highly dangerous for such diverse species as the rabbit, horse, dog, pig, and sheep, and, in short, for almost every quadruped on which they have been tried, it appears to be highly probable that they are dangerous to man. At any rate, it is impossible to cite any ascertained fact relating to other bacterial diseases that makes the contrary conclusion probable. It is well known that the majority of the disease-exciting bacteria are harmful to only one or two species, but all those that are common to all the domesticated animals are also pathogenic to man.

With regard to the view that the difference between human and bovine bacilli in respect of virulence for cattle is of such a fixed and constant character that it may be relied upon to distinguish the one from the other, it need only be said that that is very far from being proved.

The evidence in favor of the view that the ingestion of tuberculous milk is one of the causes of human tuberculosis includes a number of recorded cases in which the relationship of cause and effect appeared to be obvious.

The inhalation of tubercle bacilli expelled from the bodies of human patients is doubtless the great cause of human tuberculosis, and every practicable means of preventing infection in that way ought to be employed; but, at the same time, one ought not to concede to the milkmen the right to sell tubercle bacilli, even if one were assured that—like Professor Koch's experimental pigs—one had nothing to fear beyond the development of "little nodules here and there in the lymphatic glands" of one's neck and "a few gray tubercles" in one's lungs.

According to Leonard Pearson,⁷ it has been shown in the most unmistakable way by many feeding experiments conducted under the auspices of the Pennsylvania State Live-Stock Sanitary Board that, contrary to the early belief, animals fed tubercular materials may develop primary tuberculosis, and, in some instances, fail to show lesions in any other organ. It is strange that Professor Koch failed to observe the importance of this point, for in his address he says: "Among the animals (swine) that have been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck and, in one case, a few gray nodules in the lungs. In these cases the animals were infected by feeding, but did not develop tuberculosis in the intestines first, or at all." A little later he says: "The animals that had eaten bacilli of bovine tuberculosis have, without exception (just as in the cattle experiment), severe tubercular diseases, especially of the lymphatic glands of the neck and of the mesenteric glands, and also *extensive tuberculosis of the lungs and spleen*." Here, again, is pulmonary tuberculosis from feeding, complicated, it is true, by disease in other organs; but who could say, without knowledge of the history, by what channel the bacilli entered?

The whole question, therefore, is strictly bacteriological, the question being: Is the bovine tubercle bacillus virulent for man?

The work that has been done in this country shows very clearly that for experimental animals tubercle bacilli from cattle are in all cases as virulent and usually very much more virulent than tubercle bacilli from man. The animals used in these comparisons include her-

⁷ Phila. Med. Jour., Aug. 3, 1901.

bivora and carnivora and species that are resistant,—as the horse, goat, rabbit, and dog,—and species that are vulnerable,—as the guinea-pig, cat, swine, and cattle.

In the face of the fact that the bovine bacillus is so constantly more virulent than the human bacillus for experimental animals of so widely different species and habits of life, it does not seem safe to conclude because the human bacillus is not especially virulent for cattle that the bovine bacillus is non-virulent for man. Koch has said that this question could be settled positively only by the impossible expedient of inoculating a person with bovine-tubercle bacilli. But it has happened that such inoculation has already occurred accidentally in several instances. A number of men have contracted tuberculosis and several have died from infections sustained in making post-mortem examinations on tubercular cattle. These accidental cases show beyond peradventure that the bovine-tubercle bacilli may under some conditions be virulent for man.

An editorial* says though Koch has said nothing new—for others had maintained the non-identity of the human and bovine tubercle bacilli—he has presented the subject with his customary clearness and incisiveness, and has brought forward original experimental evidence that seems incontrovertible upon one point: that human-tubercle bacilli are incapable of producing tuberculosis in cattle. Yet there is a possible fallacy in these experiments. Koch's animals were, one may presume, in hygienic stables and, in general, under good conditions. What would happen if cows were exposed for a considerable period to the inhalation of tuberculous sputum or to the action of tuberculous material in poorly-ventilated stalls is an important question.

The more important question, as to whether bovine tuberculosis is communicable to man, is left unanswered by the experiments. In the nature of things, direct laboratory proof is impossible. Koch relies therefore entirely upon clinical evidence: upon the extreme rarity of primary intestinal or feeding tuberculosis. The rarity of clinical evidence does not constitute certain proof of the innocuousness of the bovine bacillus for man. Those parts of cattle habitually consumed by human beings are rarely extensively tuberculous, but if the lungs and lymph-glands were eaten it is quite possible that tuberculosis would be produced.

One cannot feel that the legislation so laboriously obtained for the destruction of tuberculous cattle should be abrogated.

The non-identity of the two germs—the bovine and the human bacillus—does not weaken the bacteriologist's stand-point in the least. The origin of species permits one to understand how the human, the bovine, the avian, and the piscian tubercle bacilli could readily be species of variants of one parent-stock which in time became diversified by adaptation and heredity.

It might be contended, if by passage through the cow and through the human subject, the tubercle bacillus can be so altered that new species are formed which are non-interchangeable, that the same thing might take place in man; that by its residence in a given human body or series of bodies the tubercle bacillus might suffer certain modifications which would render it incapable of producing disease in any human being, except one constituted like that from which it came. Theoretically, this may

* Amer. Med., Aug. 3, 1901.

be true; practically, the dissimilarity between human beings is immeasurably so much less than that between man and cattle that a bacillus pathogenic for one individual would be pathogenic for vast numbers of the human race.

Our chief weapons are notification, disinfection, proper disposal of the sputum, and, if Koch is wrong, the condemnation of tuberculous meat and milk.

Clement A. Penrose⁹ thinks that much light might be thrown on the relations of the bovine-tubercle bacillus with the human-tubercle bacillus, about which lately there has been so much controversy, if injections of tuberculin prepared from the bovine-tubercle bacillus were contrasted with those prepared from the human-tubercle bacillus in their effects on persons afflicted with tuberculosis. He can find no evidence in the literature that tuberculin has ever been made from the bovine bacillus and tried on human beings, a very simple and harmless thing to do. Steps have been taken by him to obtain this tuberculin.

E. W. Hope¹⁰ agrees that one of the dangers of the tuberculous infection of human beings arises from the consumption of raw milk taken from cows which are themselves suffering from tuberculosis, notably tuberculosis of the udder. Sterilization and pasteurization of milk possess one conspicuous advantage, viz.: that the application of the safeguard is within the reach of every reasonably prudent and careful household: consequently for ease of application it is beyond any comparison with the other preventive measure to be considered.

There is no clinical evidence whatever to show that sterilized or even boiled milk is less nutritious and valuable than raw milk. On the other hand, raw cows' milk, in addition to the risk of tuberculosis, brings many others.

Sterilization, valuable as it is as a final safeguard against tuberculosis, is, after all, only an expedient, and must not be put into so much prominence that the importance of other safeguards is lost sight of. Beyond any question, the ultimate advantage lies in obtaining the milk from herds free from tuberculosis.

The main causes of tuberculosis in cows are close confinement in ill-ventilated, badly-lighted, ill-constructed, and dirty cow-sheds: defects all as easy to remedy as is removal from the cow-shed of the obviously tuberculous animal before it can cause infection of the rest.

E. S. St. B. Sladen¹¹ states that the danger of using milk containing micro-organisms that cause scarlet fever, typhoid fever, diphtheria, and consumption is diminished by heating it to 80° C., and keeping it at that temperature for ten minutes. If the milk be heated to 85° C. all such danger appears to be removed.

The danger of using milk yielded by cows that have not passed the tuberculin test is without doubt a real danger, especially in the case of infants, young children, delicate people, and all those who have to be fed on a milk diet.

Clinical evidence of the transmission of tuberculosis by milk is less satisfactory than is that furnished by some other diseases on account of the long duration of the incubation-period, the less acute character of this disease, and the varying degree of susceptibility to it found in different individuals. Some cases, however, are reported in which the evidence against the milk is fairly strong. Thus, in a dairy in Scotland three cows were found to have tuberculous disease of the

⁹ Jour. Amer. Med. Assoc., Aug. 10, 1901.

¹⁰ Lancet, July 27, 1901.

¹¹ *Ibid.*, Aug. 10, 1901.

udder. In the institution to which this milk was supplied the mortality from tuberculosis during the last year was 30 per cent. and during the preceding year 40 per cent. of the total mortality. Brouardel reported that, in a boarding-school in which there were 14 girls, 5 contracted tuberculosis from drinking the milk of a tuberculous cow. Ollivier tells of another boarding-school in which milk from a tuberculous cow was used, and in which 13 cases of tuberculosis occurred. Dr. Demme states that, in the Children's Hospital at Berne, 4 infants, with no tuberculous ancestry, died from intestinal and mesenteric tuberculosis as the result of being fed upon the unsterilized milk of a tuberculous cow. Kanthack and Sladen found, on examination of the Cambridge milk-supply, that more than half the supplies tested—9 out of 16—proved infective, while of the 90 guinea-pigs inoculated in the course of the experiments no less than 23 (25.55 per cent.) developed tuberculosis. There is an opinion prevalent in some quarters that the conveyance of tuberculosis by cream is slight as compared with danger of its conveyance in milk. These experiments point in exactly the opposite direction. Three times out of the 9 cases in which a positive result was obtained did the cream produce tuberculosis when the sediment failed to do so, and in no single case was the sediment infective when the cream was not equally or more so.

The conclusions arrived at in a study of heredity in its relation to immunity and selective activity in tuberculosis by H. M. King¹² are:—

First, the percentage of consumptives having a tubercular parentage is actually smaller than that having a non-tubercular parentage, and much smaller than would be more than accounted for by the

additional danger of infection to which the former class is subjected.

Second, tuberculosis in the parents render to no inconsiderable extent an immunity to the disease in the offspring, as is shown by increased resistance to the progress of the disease and increased tendency to recover among this class.

Prophylaxis.—According to Robert Koch,¹³ it is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root, and to wage war against it with effective weapons.

If one is not able at present to get rid of the danger which small and overcrowded dwellings involve, all he can do is to remove the patients from them, and, in their own interests and that of the people about them, to lodge them better; and this can be done only in suitable hospitals. Special hospitals for consumptives should be provided. But very much would be gained if, at least in the existing hospitals, special wards were established for them in which pecuniary facilities would be offered them. If only a considerable fraction of the whole number of consumptives were suitably lodged in this way, a diminution of infection, and consequently of the sum-total of tuberculosis, could not fail to be the result. The only country that possesses a considerable number of special hospitals for tuberculous patients is England, and there can be no doubt that the diminution of tuberculosis in England, which is much greater than in any other

¹² Phila. Med. Jour., Aug. 17, 1901.

¹³ Brit. Med. Jour., July 27, 1901.

country, is greatly due to this circumstance.

As, unfortunately, the aid of the State, the municipalities, and rich benefactors will probably not be forthcoming for a long time yet, one must for the present resort to other measures that may pave the way for the main measure just referred to, and serve as a supplement and temporary substitute for it.

Among such measures, obligatory notification is specially valuable. Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but only those that, owing to the domestic conditions, are sources of danger to the people about them.

There is another measure, closely connected with notification, namely: disinfection,—which must be effected when consumptives die or change their residence. Not only the dwellings, but also the infected beds and clothes of consumptives, ought to be disinfected.

A further measure, already recognized on all hands as effective, is the instructing of all classes of the people as to the infectiousness of tuberculosis, and as to the best way of protecting one's self. Of course, the instructions must include directions as to what consumptives have to do when they cough, and how they are to treat their sputum.

Another measure which has come into the foreground of late, and which plays, to a certain extent, a paramount part in all efforts for the combating of tuberculosis, works in quite another direction. This is the founding of sanatoria for consumptives. If strict care be taken that only patients be admitted for whom the treatment of those establishments is well adapted, and if the duration of the treatment be prolonged, it will certainly be possible to cure 50 per cent., and per-

haps still more. But even then the sanatoria will never render the other measures mentioned superfluous.

In speaking of the measures adopted by different nations for the prevention of consumption P. Brouardel¹⁴ says the grounds for the prevention of tuberculosis are identical in every country. Tuberculosis is avoidable and curable. Among the many things needed may be noted the education of public opinion, so that the public will realize that personal care and cleanliness are necessary to obviate contagion, and also realize that a consumptive patient is only dangerous if the necessary precautions are not taken around him, and if he himself does not take them to protect his relatives, friends, and fellow-workmen from contagion.

Then the danger of spitting must be impressed upon the public. Collected and shut up in a private or common, but antiseptic, spittoon, destroyed by incineration or some other measure, it is dangerous to no one. Thrown into dry and well-lighted surroundings, exposed to the rays of the sun, it will soon lose its dangerous properties; but, if it remains in damp and dark surroundings, it will maintain its activity for a long time. Thus it is that tuberculosis claims more victims from gloomy, ill-ventilated, dark dwellings.

Recognizing that insalubrious dwellings are one of the most potent agents in the propagation of tuberculosis, the Legislatures of the different countries have kept this cause of insalubrity well in view, and have made laws ordering the destruction of unhealthy dwellings. The healthy house is antituberculous. But, if tuberculous germs fall in an ill-lighted, damp house, they maintain their activity

¹⁴ Brit. Med. Jour., July 27, 1901.

for a long time, whether the house is in town or country. In these surroundings population is often very dense. Thus, small tuberculous foci are created which invade the whole house; the workmen and employees carry the germs of disease into their work-shops and offices, and soon make a large tuberculous focus of the town. By looking after the salubrity of the towns the health of the whole land is protected.

Unhealthy dwellings cause other disasters. Dark and crowded as they are, cleanliness is difficult, if not impossible, to preserve; they are not pleasant to pass the time in, and the workman stays in his home as little as possible; he eats there and sleeps there, but the rest of his time is spent in the public house. Sir John Simon was right in saying: "The wretched lodging is the purveyor of the public house," and it can be added that the public house is the purveyor of tuberculosis. In fact, alcoholism is the most potent factor in propagating tuberculosis.

Any measures, State or individual, tending to limit the ravages of alcoholism will be the most precious auxiliaries in the crusade against tuberculosis.

The dangers surrounding a man in an unhealthy home are the same when for his work, his duties, his pleasure, through illness, or under constraint, a man lives all or part of the day in a center where other people are assembled, where unhealthy conditions and overcrowding exist. If he is well his companions are dangerous to him, if he is ill he is dangerous to them. This peril, from advance in civilization, is continually growing; it is the ransom, and accounts for the threatening increase in tuberculosis.

Brought face to face with those predisposed by their family history, by the

unhealthiness of their dwellings, it has been recognized as a duty in some countries to make an attempt to restore these children, and to render them capable of battling with the dangers that threaten them. In Italy and France and in other countries sanatoria by the sea-side have been established for weakly and scrofulous children. There are 14 in France, which accommodate more than 2000 children a year, and with excellent results.

Since Chauveau showed that it was possible for tuberculous germs in food to produce tubercles in the intestinal tract, attention has been turned to precautions for preventing the consumption of meats and milk from tuberculous animals. As far as meat is concerned, surveillance of the slaughter-houses in large towns achieves this. With no wish to exaggerate the danger of the propagation of tuberculosis by meat, it cannot be overlooked. It is easy, by means of legislation, to protect the population from this method of contamination.

That the milk of cows with tuberculous inflammation of the udder is used is very clear. Sir R. Thorne-Thorne, while pointing out that in England mortality in general of adults from phthisis has diminished since 1850 from 45 per cent., regrets to see that from the same date infantile mortality from tuberculosis increased by 27 per cent. According to him, this increase is entirely due to tuberculosis in the abdomen, caused by ingestion of contaminated milk in infants under a year old, for in England the cow-houses are not inspected. To prevent this method of propagation, strict inspection measures should be adopted. Until such necessary measures are actually adopted, there only remains the simple mode of avoiding risk from milk by boiling it, and this should be

widely made known, in spite of a too wide-spread prejudice, which wrongly holds that boiled milk is less nutritious and indigestible.

Treatment.—Irwin H. Hance¹⁵ observes that the home-treatment of tuberculosis consists of the care of the tuberculous patient in some near-by country-place, where the environment is changed, but the climatic conditions remain the same.

Fresh air is required every day and every night; the more, the better. For winter, the patient's bedroom should face the south and west, and should have windows on both sides, so that one or more can always be open, except while bathing or dressing; there should be an open fire-place in the room. For summer, an easterly exposure with windows on the south as well, is to be preferred. For summer, tent-life night and day is the ideal one.

From the very beginning the physician should instruct and order what the temperature of the sleeping-room should be; how the windows and blinds should be arranged, for night, particularly; how much time the patient should be out-of-doors; and his aim should be so to educate and acclimate his patient little by little that he can be out-of-doors every day, rain or shine, for from four to twelve hours.

Often, to begin with, a patient has no appetite; food is obnoxious and repulsive. When such is the case, one should prescribe absolute rest, concentrated liquid food every two hours until 8 P.M. and once during the night, and evacuate the bowels daily. Overfeeding is the principle to act upon in all cases, whether feverish or not, whether incipient or advanced, and keep it up until the patient is up to or above his usual weight. If the patient is capable of eating three

good meals a day, some easily digested food may be given between each two meals and at bed-time.

Rest should be absolute in all febrile cases, and in all cases at the commencement of treatment for a period of from one to four weeks. The exercise should be under the control of the physician, and its effect upon the patient should be watched carefully in regard to temperature, heart's action, chills, slight suspicions of blood in sputum, loss of or stationary weight, and a state of distinct overfatigue. The bad effects of over-exercise are cumulative, and the physician needs to be very cautious in allowing any great increase in the exercise to begin with.

Medicines play a secondary part in the treatment of tuberculosis, and are directed only to the symptomatic treatment of the disease.

The patient should be warm, and never feel chilly from being out-of-doors. The mistake is made of wearing too heavy underclothing and chamois protectors, etc. The best principle is to dress warmly enough for in-doors and then have very heavy and warm outside wraps, which can be easily put on and taken off. The clothing should never be such as to produce sweating when a patient is quiescent.

The pale, dry—sometimes slightly cyanotic—skin of the tuberculous invalid can be speedily and greatly improved by the use of water. When proper hydro-pathic appliances are not at hand, the two measures about to be described are fruitful of great good. Standing in hot water (104° F.) up to the ankles, the patient, if unaccustomed to bathing, sponges the whole body with water at 85° F., daily lowering the temperature

¹⁵ N. Y. Med. Jour., Aug. 10, 1901.

until the cold water as it flows from the faucet is used. Vigorous rubbing with a coarse towel completes the bath. To begin with, the bath may be taken at night, but afterward it is better given in the morning. After this form of bath has been used for several weeks the dashing of cold water from a few feet above the head over the spine increases its usefulness. For many of the weaker class of patients the following procedure may be selected: The patient lies naked in a heavy blanket; an attendant, not necessarily a skilled one, rubs the body vigorously with a very strong, hot (110° F.), salt solution, using along the spine the pure moistened salt to produce a greater reaction; then the whole body is gone over with cold water, beginning at 80° to 85° F. and daily lowering the temperature until 50° F. is reached. The time consumed will vary from thirty to fifty minutes for the whole bath; the hand must always be used, no mitten or cloth; and only one part of the body be exposed at a time. It is best done at night; the patient will rest better after such a rub, and the effect upon the capillary circulation and the general condition will often be shown by the cessation of night-sweats even when these are pretty severe.

The family, by being oversolicitous about draughts, fresh air, etc., and from one cause or another, oftentimes reacts badly upon the patient's mental and nervous condition. To overcome these the doctor must have absolute faith in his own treatment and be capable of dispersing all the patient's doubts.

Edward Playter¹⁶ considers habitual deep breathing, night and day, of pure out-door air, as the first remedy in consumption.

"Stuffing" is not attempted in the Highfields Sanatorium. One of the ad-

vantages of sanatorium treatment is that the patient's assimilative powers can be closely watched and studied, that they may not receive more than can be thoroughly disposed of. Increase of weight is not at all a positive indication of improvement. One should not aim to increase fat or flesh as much as tone and strength.

As a nutrient, bovine gives good results. A preparation of sterilized, evaporated ox-blood, with Malaga wine, glycerin, and other preservatives, is an excellent substitute.

The judicious use of the tempered bath, for promoting a healthy, vigorous skin, is of great value.

Codliver-oil and creasote may be administered at bed-time, in the form of inunctions. This, followed in the morning by a good wash with warm water and soap, and then a cool or cold "rub" with sponge, towel, or hand, as a tonic.

Most phthisical patients considerably advanced in the disease need rest rather than active exercise: although passive exercises are often useful and promote sleep, when given a little before bed-time.

Inhalents—antiseptic, sedative, astringent, etc.—are usually best for controlling cough and improving the mucous membrane of the air-passages.

Night-sweats and chills soon subside with abundance of oxygen; and nausea and diarrhoea, usually with a judicious diet; even, if necessary, of Wampole's malted milk, alone for a time, or concentrated beef-juice. For hæmorrhages, absolute quiet, cool air; and, if severe, opium, are usually sufficient.

P. Brouardel¹⁷ says that, if a man is

¹⁶ Canadian Jour. of Med. and Surg., July, 1901.

¹⁷ Brit. Med. Jour., July 27, 1901.

the victim of tuberculosis, everything possible should be done to cure him, for he can be cured. There is no doubt of this.

As for his personal experience at the morgue in Paris, where necropsies are frequently made on accidental deaths, it may be stated that, in half the cases if the person on whom the necropsy is made has lived in Paris for about ten years, tuberculous lesions are found healed, either in the form of cretaceous transformation or fibrous cicatrization. In spite of often deplorably dirty habits the system has been strong enough to resist the ravages of the disease.

These lesions, in the majority of cases, are not phthisis in an early stage manifested by small disseminated foci; they are cicatrices of large foci, sometimes of wide cavities completely cicatrized. Phthisis, therefore, is curable, even in its most advanced stages. The doctor, being himself firmly convinced that his patient can be cured, will make the necessary modifications in his way of looking at the disease.

In speaking of the best methods of treatment, the disease is only dealt with as it affects working-men and employees.

In Germany there are polyclinics for tuberculosis in the large towns, where a doctor, provided with the things necessary, attends to the patients who come to consult him, either throughout their illness or until the patient can be admitted into a sanatorium. A committee, composed of large numbers of benevolent men and women, looks after the patient at home, tells his wife what to do, sees that his home is kept clean, and looks after necessary prophylactic measures.

M. Calmette conceived the same ideas, but he went farther, and advised that, instead of waiting for the workman to come for advice, one should go and meet

him, by inviting him to come to a dispensary, run on the same lines as the German polyclinics.

He has carried out his proposal; he opened an antituberculous dispensary at Lille, called Emile Roux, and it has been eminently successful. Experience shows that workmen do not shun these dispensaries; some come because they have a cough; others because they know themselves attacked. The best way to ferret out disease would be to have one or more agent-workmen, foremen, if it were possible. They are the ones to notice when their comrades cough; they could advise them to go to the dispensary. Alive to the dangers of a badly-kept workshop or yard, they will superintend its being kept clean and in order; they will actually carry out antituberculous education. Those who visit the dispensary receive the necessary attention from the doctors, and are told the danger of dissemination of sputum, alcoholism, etc. They are looked after, they get meat-soups—one or two meals, as far as funds will allow. Their families are helped, and an eye is kept on their home from the hygienic point of view; as far as possible, the poverty by which the poor man is threatened is kept away from him.

Among these patients, some are found who must be sent to a sanatorium. If the patient is an unmarried man, and if he can be sent to a sanatorium, his chances of recovery are very great; but for a married man to go means that his wife and family must be provided for during his absence, and his mind relieved of all anxiety on their account. Relief banks for assisting the families of the inmates are most necessary to sanatoria. And in many cases sanatoria are essential to complete the work begun at the dispensary. Sanatoria should be closed, aseptic, disciplined, and worked on Dett-

weiler's principle: physical and moral rest, stuffing, and open-air treatment. In Germany there are 83 public sanatoria open or ready to open. They accommodate 12,000 patients a year. They have been built by local insurance, by sickness banks, by the manufacturers, who have combined to found sanatoria for their work-people, and by parishes which have united for the purpose. There are most of the latter. In some parts a tax of a penny a head has been exacted. The treatment lasts at least ninety days, and experience has shown that it is good for the patients to spend another month, in the year following recovery, at the sanatorium.

Under these circumstances, how long do the patients keep better? Of those who leave the sanatorium in what is considered a satisfactory condition, it has been shown that 46 per cent. in 1896, 47 per cent. in 1897, 58 per cent. in 1898, 60 per cent. in 1899 were able to work. The cost per head per patient for the three months' stay amounts to eight francs per diem, including the cost of the assistance given to the patient's family. If a sanatorium is to be well and economically managed, it should be neither far from a town nor placed on a height.

Experience has shown that a sanatorium is not a source of danger to a neighborhood. What is dangerous is phthisis at large, which disseminates sputum everywhere in the house where patients are received without being controlled. For the safety of all concerned, every house where tuberculous patients are taken ought to be open to State inspection.

If the patient is beyond the first stages when he asks for admission to the hospital, it must not be overlooked that he may still be cured, provided he can be made to see things as they are. He must

be isolated, in order that he may not be discouraged by the spectacle of his comrades' sufferings. Rules of isolation have been drawn up by Grancher and Thoinot for the patient, for his nurses. At Brompton, in twenty years, 15,000 consumptives have been cared for. No doctor, officer, or nurse has been infected.

C. T. Williams's¹⁸ conclusions as regards the effects of the climate of high altitudes on consumption are:—

1. That the respiration of the rarefied atmosphere produces hypertrophy of the healthy lung and local pulmonary emphysema around the tuberculous lesions, giving rise, in due time, to thoracic enlargement.

2. That it is possible the arrest of tuberculous disease is at least partly due to the pressure exercised on the tuberculous masses by the increasing bulk of the surrounding lung-tissue, which by emptying the blood-vessels promotes caseation and cretification of the tubercle.

3. That these changes are accompanied by general improvement in digestion and assimilation, the cessation of all symptoms of disease, the return of natural functions, by gain of weight, of color, of nervous and muscular activity, and of respiratory and circulatory power.

4. That arrest of disease takes place in 58 per cent. of the tuberculization cases, and great improvement in 87 per cent. That in excavation cases arrest occurs in 21 per cent., and great improvement in 61 per cent.

5. That the climate is specially beneficial in hæmorrhagic phthisis, and phthisis in which hereditary predisposition is strongly marked, and is well suited to chronic tuberculosis of the lungs in general, provided the extent of lung in-

¹⁸ Brit. Med. Jour., July 27, 1901.

volved is not too large or the disease accompanied by much fever.

6. That males and females seem to do equally well and to profit most between the ages of 20 to 30. Males over 40 and females under 20 benefit least.

7. That the climate is contra-indicated in acute phthisis, catarrhal phthisis, in laryngeal phthisis, in cases of phthisis accompanied by great nervous irritability in patients with double cavities, with fibroid phthisis, and in all patients whose pulmonary surface has been so much reduced from any cause that it does not suffice for complete respiratory purposes.

I. Burney Yeo¹⁹ thinks:—

1. That cases seen at the very commencement of the disease, and who are otherwise in good health, may be permitted a certain amount of choice in the selection of a climate, provided it allows of many hours' being spent daily in the open air, and that they are placed under admittedly hygienic conditions. A choice may be made from climates of altitude, the desert climate, the inland plateaus of South Africa, the sea-voyage for those with a decided liking for the sea, and suitably placed sanatoria.

2. For progressive febrile cases, repose in bed or on a couch at home, in the best conditions practicable for the free access of air and sunshine to their apartments.

3. For advanced cases home is best if the conditions of home-life are favorable, or the warm, marine climates with cheerful surroundings if home-life is unfavorable or change is urgently desired.

4. For catarrhal cases warm, soothing climates, like Madeira or Teneriffe, are best.

5. For rheumatic or gouty cases of the fibroid or pleurogenic type, dry, marine climates or the desert climate are the most suitable.

6. For the so-called "scrofulous cases," if free from catarrh, fairly bracing marine climates; if with catarrh, mild marine climates should be prescribed.

7. For most other moderately advanced cases, with the limitations already mentioned, the climate of the high mountains, above the cloud-belt, is the most curative.

H. Meffert²⁰ recommends that in the treatment of tuberculosis the patient be placed on a bed which is first covered with a large woolen blanket, over which are placed two shorter blankets of such size that one will serve to envelop the trunk, the other the legs, separately. Over these is placed a sheet. The patient should remain in these coverings in a "dry pack" until thorough warm. His trunk is then uncovered, he sits erect and is sponged a few minutes, the trunk is then covered without being dried, and the same procedure is carried out with the legs. He then lies in the damp pack until dry and warm. After this, he steps into a chamber-bath containing luke-warm water, and is given a shower-bath from a sprinkling-pot for thirty seconds, when he is thoroughly dried and clothed.

During the last nineteen months Henry Harper²¹ has used pure urea in a large number of cases of different forms of tuberculosis, and believes it to be a remedy of superior value to any that is used for this disease at the present time. He has administered it both internally and hypodermically with satisfactory results.

On looking over personal notes of cases of the family history of patients, it is found that families showing a marked tendency to gout, gravel, and calculus rarely suffer from tuberculous disease.

¹⁹ Brit. Med. Jour., July 27, 1901.

²⁰ Deutsche med. Wochen., May 9, 1901.

²¹ Lancet, March 9, 1901.

Tuberculous patients should consume as much animal food as possible.

Personal impression is that, if we saturate a patient with urea or uric acid, this, in combination with the fluids of the body, would act as an antitoxin to the bacilli.

It has long been recognized that the teeth of the highly tuberculous are ivory white, resembling the clean white teeth of the herbivora. On the other hand, the teeth of the gouty are crusted with concretions consisting largely of lime-salts and chemical substances closely allied to calculus.

Along with the administration of urea, treatment should be applied in the broad sense: that is, pure air and plenty of nutritious foods, most of all those rich in albumin being used, and including

daily one kidney well cooked, and half a pint of very concentrated beef-tea; also exercise in the fresh air as freely as possible, and in carefully selected cases, if there is no hæmorrhage, practice with light dumb-bells and Indian clubs. Drugs of recognized value are to be given: iron and codliver-oil more frequently than any; occasionally medicines to improve digestion, such as hydrochloric acid, strychnine, and pepsin; and creasote in combination with codliver-oil. On two occasions this treatment has called forth symptoms of gout—viz., pain in the big toe-joint and pain in the lumbar region, accompanied by gouty urine containing nearly double the normal quantity of urea. On lessening the animal food and increasing green vegetables these symptoms soon passed off.

Cyclopædia of Current Literature.

ANÆSTHETICS IN HEART DISEASE.

It would seem from a study of one hundred and forty-two cases that in the myocardial affections only do anæsthetics exert any markedly bad effects. In valvular disease their influence is very slight, but yet appreciable. In functional disturbances insignificant.

In every operation the anæsthetist plays almost as important and in some cases a more important rôle than the operator, and one of the reforms most urgently needed in the medical practice of our country to-day is a thoroughly competent corps of anæsthetists in the hospitals, and in medical schools a thorough and complete course of instruction in the proper methods of administration and use of these agents. J. M. T. Finney (*Amer. Jour. Med. Sciences*, Aug., 1901).

ANAL POCKETS.

These pockets are present in the rectums of the living to the extent of 80 per cent., but they are entirely absent in the dead. The so-called anal pockets may be the cause of certain diseases located in the lower outlet of the bowel, but it is believed that they are most likely the frequent predisposing cause of an irritable ulcer of the anus. If the rectum is examined in the quiescent state, when the bowels are empty, it is found that the anus is closed; the anal valve and its corresponding sac are absent. But, when the bowels move, the anal canal is opened and the anal valve becomes prominent, the same as would occur had an anal speculum been introduced and opened. Should a hardened faecal mass pass through the anal outlet,

with a prominent pseudovalve protruding, then this valve would most likely be caught by the moving mass and possibly be torn, producing what might be termed an irritable ulcer of the anus. L. J. Krouse (*Amer. Med.*, July 6, 1901).

ARTERIOSCLEROSIS AND HYPERTONUS, CONNECTION BETWEEN.

Recurring or continued hypertonus leads to hypertrophy of the muscular media of the arteries, under the physiological law that increased action in muscle leads to its hypertrophy. This accounts for the thickened media. The thickened intima is to be explained by the circulation in the blood of deleterious substances of various kinds; these substances act on the subendothelial connective tissue, irritate it, and lead to its hyperplasia. Thus is obtained the completed picture of arteriosclerosis. The evolution of the changes occupies a varying time in different persons; in some the hypertonus comes early in life, and in early middle age sclerosis is established. In some there is little physiological error, hypertonus is but an occasional occurrence, and sclerosis appears late in life. The capability of the arteries to contract when an excess of toxin is present is seldom lost, and that is the reason why the recognition of it in sclerosed vessels is a matter of such great practical importance. William Russell (*Lancet*, June 1, 1901).

ATROPINE AS A PHYSIOLOGICAL ANTIDOTE IN MORPHINE POISONING.

There can be no doubt that atropine may be of value as an antidote in morphine poisoning, but only before the third stage, and then only when given in small or moderate doses. But even here its usefulness is practically limited

to a possible excitation of the respiratory movements and a stimulation of the circulation; both of which, however, may be fully compensated for in its pernicious effects, chiefly upon general metabolism. Given in large doses during the second stage, or in moderate to large doses during the third stage, it almost, if not without exception, does harm by intensifying the morphine condition, prolonging or shortening, but intensifying, the second stage, or shortening the third stage and hastening the fatal issue. If the second stage is shortened, it is owing to the earlier development of the third stage of the poisoning. This has been personally found to be a uniform result of a large number of experiments upon dogs, and which is fully supported by the records of other investigators. In fact, a dose of morphine that is not lethal may be made so by the synergistic actions of a sublethal dose of atropine. E. T. Reichert (*Therap. Monthly*, May, 1901).

BLOOD, BACTERIOLOGICAL EXAMINATION OF THE.

In cases of general blood-infection a bacteriological examination is often of the greatest value both for purposes of diagnosis and prognosis. The blood (not less than 2 cubic centimeters) should be drawn from a vein by means of a sterile syringe. It is then spread over the surface of agar or other medium, and incubated. If rigid aseptic precautions are observed the margin of error is very small.

Of 19 cases personally examined, organisms were present in the blood in 5. From these 5 may be excluded 1 in which the blood was taken in capillary vaccine-tubes with every probability of contamination. The 4 remaining cases were briefly as follows:—

1. Puerperal sepsis, which terminated fatally; the organism present was the *staphylococcus pyogenes albus*.

2. Ulcerative endocarditis. Streptococci were found in the blood on three different occasions. The case terminated fatally.

3. Ulcerative endocarditis. The *staphylococcus albus* was found in the blood. The patient died.

4. Pneumonia. The pneumococcus was present in the blood. The case terminated fatally.

Of the 14 cases in which no general blood-infection could be demonstrated, 2 died, and the subsequent history of some few others it was unable to trace. Among these 14 were cases of puerperal fever, pernicious anæmia, ulcerative endocarditis, cerebro-spinal meningitis, and enteric fever.

All the cases showing general blood-infection terminated fatally, illustrating the fact that, from the point of view of prognosis, this method of bacteriological research is of the highest importance.

In the case of blood-examinations failure to detect micro-organisms cannot be accepted as proof of their absence, for the quantity of material examined is relatively small. The chances of error with a positive result are, however, small, and depend solely on the care and attention bestowed upon the sterilization of the syringe and skin. J. Odery Symes (Brit. Med. Jour., Feb. 23, 1901).

COLIC, INFANTILE.

Colic is a symptom of many pathological states of the intestinal tract. The causes of infantile colic are: (1) flatulence; (2) influences acting through the mother; (3) indigestion; (4) refrigeration. The absence of pancreatic digestion in early infancy is perhaps one reason for the frequency of imperfect

digestion at this time of life. Slow or insufficient digestion results in the development of flatus. If the mother is constipated, the infant is apt to be constipated, and the mother's milk under these circumstances is apt to produce flatulence. The diet of the mother is also responsible for much flatulence in the infant. Another common cause is taking salts, senna, and similar purgatives by the mother, and this, too, even when these drugs are not taken in sufficient quantity to produce any evacuation from the mother's bowel.

Infantile colic sometimes arises from mental worry on the part of the mother or from suckling the infant immediately after sexual excitement. A case has been recorded in which a most obstinate colic in an infant immediately subsided when the mother had sought the aid of a dentist and had a carious tooth extracted which had caused her much toothache. The commonest cause is overfeeding, particularly too frequent nursing and feeding. Another common error is the giving of too large a quantity of food, even though the latter is of the proper composition and given at suitable intervals.

In comparatively rare instances infantile colic arises from a deficient supply of food. Refrigeration is produced commonly by lying in a wet diaper, walking over a cold floor, or exposure of the abdomen to a draft of cold air. In cases of colic associated with grave pathological conditions one does not see the kicking of the legs observed in simple colic nor does the child cry for a few minutes with pain and then relax into a smile.

The treatment of infantile colic divides itself into: (1) the immediate relief of the pain; (2) removal of the cause. One of the best methods of treatment is irrigation of the lower bowel with hot

water and the external application of heat. In protracted cases opiates should not be given. In infantile colic nothing is superior to milk of asafœtida freshly prepared. The dose is $\frac{1}{3}$ to $\frac{1}{2}$ teaspoonful, followed, if necessary, by a second dose in fifteen or twenty minutes. It is given with a little fine sugar on a spoon. When the attack comes on shortly after nursing it can often be averted by giving before the nursing some of this medicine or some warm fennel-tea. The general treatment may be instituted in the removal of the cause. Where milk in any form disagrees, it should be discontinued as soon as possible, and meat-broth and cereals substituted. Hiccough is sometimes a troublesome sequel, and is most easily relieved by putting a few grains of fine sugar into the infant's mouth. H. Illoway (Pediatrics, July 16, 1901).

CYSTITIS, PYELITIS, AND PYELONEPHRITIS IN WOMEN.

A consideration of the results obtained in personal investigations will justify the following conclusions:—

1. The direct cause of the infection of the urinary tract in women is the invasion and multiplication of some form of micro-organism.

2. The commonest cause of these infections is the *B. coli communis*, which a consideration of the cases of acute cystitis definitely proves can and does, in a large number of cases, set up a true infection without the aid of any other micro-organism.

3. Marked variations are seen in the virulence of this micro-organism and in its pyogenic properties.

4. Other micro-organisms frequently found are the tubercle bacillus, various staphylococci, and the *B. proteus vulgaris*; while numerous varieties of mi-

cro-organisms have been less frequently and occasionally met with, as the *B. pyocyaneus* and *B. typhosus*.

5. The proportion of cases of infection due to the *B. coli communis* is greater in women than in men, probably due to the close proximity of the female urethra to the anus.

6. Besides the entrance of the micro-organisms, other factors are, in most cases, essential to the development of a cystitis; the chief of these factors are anæmia, malnutrition, trauma of and pressure upon the bladder, congestion of the bladder, and retention of urine.

7. In cystitis the chief mode of infection is by the urethra, although one must also consider as possibilities a descending ureteral infection from an infected kidney, pyogenic metastasis by means of the blood- and lymph- currents, and direct transmission of the micro-organisms from the intestinal tract, or from some adjacent focus of infection.

8. In pyelitis and pyelonephritis the usual modes of infection are along the ureter from an infected bladder, and by means of the blood- and lymph- currents; in our cases these modes of infection were found about equally represented.

9. In the great majority of cases of cystitis, both acute and chronic, and in the majority of cases of pyelitis and pyelonephritis, the urine is acid.

10. In the cases in which the urine is ammoniacal the infection can be produced without the aid of any of the accessory etiological factors mentioned above, the irritation of the ammoniacal urine apparently being sufficient to render the bladder susceptible to infection.

11. In the case of infections of the kidney due to a urea-decomposing micro-organism, a stone is very likely to be present if the case is at all chronic.

12. Certain conditions exist which present most of the symptoms of cystitis, but no infection, the most difficult of which to diagnose is probably urinary hyperacidity of neuropathic origin, the successful treatment of which depends upon the successful recognition, both of its urinary features and its general basis.

13. Although the diagnosis of renal infections can be made with absolute certainty only by ureteral catheterization, a probable differentiation between renal and vesical infections can be made by a careful study of the urine alone.

14. Tuberculous infections of the urinary tract frequently occur with no other demonstrable tuberculous lesions elsewhere in the body. Probably a tuberculous gland would be demonstrable post-mortem in most of these cases.

15. The colon bacillus seems to be the commonest cause of pyelitis, while the *B. proteus vulgaris* and members of the staphylococcic group are also found less frequently.

16. And finally to be able to thoroughly understand the cases of cystitis, pyelitis, and pyelonephritis brought to our notice; to make the proper diagnosis; to inaugurate and carry out a rational line of treatment, and to give a correct prognosis, a careful chemical and bacteriological study of the urine is absolutely essential. T. R. Brown (Johns Hopkins Hosp. Reports, vol. x, Nos. 1 and 2, 1901).

DYSENTERY.

Treatment by Serum-therapy.—The serum is obtained—as in typhoid fever, cholera, or pest—from an animal which has been rendered perfectly immune, and a certain antiseptic is added to it.

The horse or ass should be preferred as the immune animal. A slant agar

culture of the bacillus which has been incubated for twenty-four hours is scraped off and ground up in an agate mortar, and physiological salt solution added, and it is heated then at 50° to 60° C. for twenty minutes.

A small dose of the mixture is injected first under the skin of an animal. The animal manifests high temperature, impaired appetite, and languid appearance, which disappear usually within two or three days. The injection is repeated afterward in somewhat large doses, and the interval between each injection should be not less than two or three weeks. In such a way, the dose of the mixture is increased gradually until the animal becomes immune to a certain degree. Thereafter intravenous injection is carried out. Three weeks later, after the last injection, the blood is drawn off, and the serum is obtained. Carbolic acid is added to the serum in proportion of 5 per cent.

Before the serum is used for patients its power should be tested in an animal. The method is as follows: The serum is injected into experimental animals in several doses, and twenty-four hours later fivefold of the fatal dose of agar culture is injected into the abdominal cavity of the animals. As a control test, normal serum of an animal is injected into other animals.

The method of using the serum is quite the same as that of other serum-treatment, and the side of the chest is preferred as the seat of injection. The dose varies much according to the severity, namely: In the mild form 6 to 10 cubic centimeters are injected, while 15 to 20 cubic centimeters are injected in the serious form. If the symptoms are not relieved in the next day, the injection should be repeated, and sometimes the dose will have to be increased to 40

or 50 cubic centimeters according to the case.

Among 40 patients who were admitted into the institute between July and October, 1900, 15 (37 per cent.) had eruption around the seat of injection; 1 (2.5 per cent.) had eruption in the whole body; 2 (5 per cent.) had eruption of the whole body; 2 (5 per cent.) had pain in joint, and the remainder presented no change.

If the serum-treatment is carried out in an early stage of the disease in which only muciform stools or the stools mixed with a few spots of blood are passed, diarrhoea disappears on the next day, and two or three days later normal stools are passed, and patient recovers.

If the serum-treatment is used in somewhat advanced stage, with mucosanguineous stools which are passed twenty to sixty times daily, the frequency of defecation decreases remarkably the next day, and blood in the stools disappears. Tenesmus and tenderness disappear, and the patient feels marked relief, with restoration of appetite, and an abundant discharge of urine.

Even in the more advanced stage in which the mucous membrane of the intestine is ulcerated, and gangrenous or sloughy stools are passed, its duration may be shortened by the serum-treatment.

In majority of the cases of so-called "typhoid dysentery," in which the toxic symptoms appear, the serum-treatment cannot be efficacious.

The medicines which were used in addition to the serum-treatment are summed up below:—

Calomel or castor-oil was used first to cleanse the bowels, and the enema of salt solution or soda-water was used afterward repeatedly. Besides these, lemonade, dilute hydrochloric acid,

claret, and some alkaline remedies were administered. K. Shiga (*Sei-I-Kwai Med. Jour.*, June 30, 1901).

EPIGASTRIC PAIN.

Epigastric pain is usually dependent on some disorder of digestion, and its relation to gastritis, to ulcer and cancer of the stomach, and to hyperchlorhydria is well known. Likewise its dependence on malaria and gastric syphilis has been repeatedly pointed out in recent years. There remains still a fairly large number of cases in which epigastric pain plays the leading rôle, and in which the above diseases have no part.

Paroxysmal pains in the epigastrium—variously called gastralgia, cardialgia, gastrodynia, and gastrospasm—are frequently caused by gall-stones and cholecystitis. It seems probable that the majority of cases diagnosticated as gastralgia, in which the classical symptoms of gastralgia occur,—viz.: violent paroxysmal pains in the epigastrium, boring or tearing and radiating in character, accompanied by prostration or collapse,—are in reality cases of gall-stones with accompanying cholecystitis. A close study of every case is necessary before a diagnosis can be made. The special features of paroxysmal epigastric pain due to gall-stones are these: the attacks may occur independently of the taking of food; they often occur at night, four to six hours after the last meal; they come without apparent cause, sometimes after the blandest diet. They are very likely to follow the ingestion of acid drinks or alcoholic beverages. They are often accompanied and followed by tenderness over the gall-bladder. Between the attacks the gastric functions and the gastric secretions may be perfectly normal. Many patients affected with gall-stones complain for months of epigastric

pains, coming on daily after meals and of variable intensity and duration.

The dependence of epigastric pain on spinal disease has long been recognized, but is occasionally overlooked in practice. In a certain number of patients pressure against the anterior surface of the spine about an inch below the umbilicus produces a severe pain located in the epigastrium and radiating to the hypochondria: a pain identical with that which led the patients to seek medical advice, and for which they had been dieted and medicated in vain.

Persistent epigastric pain may be produced by pelvic lesions, and much more rarely by eye-strain.

A very interesting form of epigastric pain occurs in young chlorotic girls, who complain of more or less intense gnawing or boring in the epigastrium, increased by the ingestion of food, and in many respects suggesting the pains of gastric ulcer. A differential diagnosis is not always easy, nor is it possible to define the underlying pathological basis of this symptom. Its special features are the chlorotic background, the absence of nausea or vomiting, the localization of the pain in the median line; normal or diminished acidity of the gastric juice; marked spots of tenderness corresponding to the seat of pain; and, most important of all, the rapid moderation or disappearance of the pain on the administration of Bland's pills and Fowler's solution.

A form of epigastric pain accompanying arteriosclerosis is deserving of very careful attention. Elderly patients often complain of a crampy feeling just beneath the ensiform cartilage, coming on usually after meals when any exercise is indulged in. Even slow walking suffices to arouse the pain, which ceases as soon as the patients stand still or sit

down. The peculiarities of this symptom are as follow: it affects only those who are advanced in years; it is most troublesome during the two or three hours which follow the ingestion of food; it is not accompanied by local tenderness or by valvular lesions of the heart; or by dyspnoea; the digestion is very slightly, if at all, impaired; and it is a very obstinate symptom, resisting all methods of treatment and lasting for months and years. It does not affect the general health, but remains as a very annoying symptom. H. W. Bettmann (*Cleveland Jour. of Med.*, July, 1901).

EUROPHEN, THERAPEUTIC APPLICATIONS OF.

By the action of iodine on isobutyl-orthocresol in a solution of potassium iodide a very light, amorphous, aromatic powder is formed, having an odor resembling saffron. It is soluble in alcohol, ether, chloroform, and the fixed oils; insoluble in water and glycerin; melts at 110° C. It is permanent dry, but when left moist at ordinary temperatures it gives off free and nascent iodine. It has one-fifth the bulk of iodoform. To this drug has been given the name *europhen*.

Europhen, because of its complex composition, more readily gives up its iodine than its homologues. It is very adhesive, and because of its low specific gravity it is capable of covering a more extensive surface than any similar remedy if used as a dusting-powder. The antiseptic properties depend not alone on the freeing of the nascent iodine, but also on the liberation of its cresol, a homologue of phenol in its combination.

In troublesome stitch-abscesses *europhen* gives most uniformly good results.

Internally it has been employed in

many cases in which iodine and the iodides were indicated. In syphilis it did all that potassium iodide could be expected to do; and in tubercular conditions its internal administration has been followed by some remarkable results. As an intestinal antiseptic in typhoid fever, euophen is an efficient drug. In twenty cases of typhoid fever personally treated with regular doses of euophen the temperature rose in none above 103° F. Many of the cases had temperatures over 103° F., despite the Brand treatment, until euophen was given: then a fall of from 1 to 2 1/2 degrees in the evening temperature took place.

As an antisyphilitic in late specific lesions when an idiosyncrasy against potassium iodide exists, euophen meets every indication in which the former drug is useful. Especially is its beneficial effect noticed when cachexia exists. Euophen with reduced iron, together with the red iodide of mercury, soon brings a change for the better.

Several years ago Dr. W. H. de Witt reported a very remarkable case of tuberculosis of the face with great disfigurement, in which excellent results were obtained by local inunctions of a 5-per-cent. euophen ointment in connection with the internal administration of the drug in 2-grain doses three times daily.

Euophen in doses of 5 to 10 grains does not produce any irritant action on the kidney. W. E. Thomas (*Amer. Med.*, Aug. 3, 1901).

GASTRIC FERMENTATION, TREATMENT OF.

The only reliable manner of telling whether or not fermentation is going on in the stomach is by direct examination of its contents. Eructation is a most

unreliable symptom of fermentation, existing, as it does, more frequently in nervous disturbances of the stomach than in organic diseases of the organ. The treatment of fermentation differs according to the kind of fermentation found; whether it be lactic-, acetic-, or butyric-acid fermentation, or that form due to yeast or sarcina growth. If chronic gastric catarrh is present, it demands proper and continued treatment. The diet varies with the chemistry of the stomach. If butyric acid is formed, fats should be withheld. If acetic acid is present, starches and sugars should not be allowed. Lactic acid is not often formed in abnormal quantities unless free HCl is absent and many lactic-acid-forming bacilli are present. In such cases HCl should be given, and, if the disorder persists in spite of lavage, intra-gastric electrization and astringent lavements, pepsin combined with benzonaphthol, resorcin, bismuth salicylate, or sodium hyposulphite may be administered. If with one or more of these fermentations there is uncomfortable flatulence, great relief is afforded by neutralizing the acids formed and simultaneously soothing the mucous membrane.

In treating fermentation due to hyperchlorhydria one is, as a rule, dealing with marked pyloric turgescence and spasm, coupled with notable indigestion of starches. The diet should at once be rigid and enforced, consisting of meats, eggs, and milk.

If pyloralgia and epigastric tenderness are present, it is best to put the patient on a milk diet for a few days.

Personally, no remedy is known for this state that compares in efficiency with the now well-known prescription learned years ago from Dr. Stockton. It consists of 1 part of cerium oxalate, 2 parts of bismuth subcarbonate, and 4

parts of calcined magnesia. Of the mixture from $\frac{1}{2}$ to 1 teaspoonful should be given, stirred in a quarter of a glass of water at 10 A.M., 3 P.M., and 9 P.M., or thereabouts as to time. Flatulency subsides, gastric discomfort disappears, and the bowels are usually sufficiently opened, at times too much so; and the dose must then be reduced. The condition in which, before all others, grave fermentation is likely to take place is pyloric stenosis, benign and malignant. If the microscope reveals excessive yeast-growth in the gastric contents, it may be more effectively checked by salicylic acid than by any other drug. Usually 5 or 10 grains in capsules are ordered to be taken after meals. Lavage with potassium-permanganate solution, 2 grains to the pint, is usually efficacious in cleansing the stomach.

Coarse foods should absolutely be prohibited, and the amount of food greatly restricted. Rest, rectal feeding, and but small quantities of tropon, plasmon, nutrose, somatose, or other concentrated albuminous preparation per orem may be demanded to control persistent vomiting and distress that are not infrequently present. In some cases of benign stenosis with an abundant secretion of hydrochloric acid, taka-diastase serves a useful purpose when starches are allowed in the diet.

In malignant stenosis at or near the pylorus, lavage is indispensable in the medical treatment of its distressing symptoms. The lavish administration of hydrochloric acid is the best means to control the multiplication and activity of the Boas-Kauffman bacilli, aside from thorough lavage and the use in the wash-water of silver nitrate, protargol, argem-tamin, or other antiseptic astringents.

In a few of these cases starch digestion is distinctly promoted by a thick extract

of malt, and the functions of the stomach assisted for a time by orexin tannate. Allen Jones (*Inter. Med. Mag.*, June, 1901).

HÆMORRHAGE, USE OF GELATIN FOR CONTROLLING.

As a result of the analysis of the literature and personal experience with gelatin, the following conclusions are reasonable: 1. Gelatin increases the coagulability of the blood, whether applied locally, taken internally by the mouth, or injected subcutaneously or intravenously. 2. Applied locally it is usually harmless, and may, as Carnot suggested, aid in healing by improving the nutrition of the cells, although this is personally regarded as doubtful. It may be injurious by promoting bacterial growth, and should probably always have some antiseptic added to it. 3. Injected subcutaneously or intravenously it is entirely harmless, and, when the technic is perfect, practically painless. The solution should be thoroughly sterile; the dose employed should vary from 1 to 3 grammes of pure gelatin. 4. When administered by the mouth, from 1 to 300 grammes, or perhaps more, should be employed daily. 5. It is of advantage in any form of local hæmorrhage, such as epistaxis, hæmorrhoids, or injuries. 6. It checks certain forms of internal hæmorrhage, such as hæmoptysis, hæmatemesis, metrorrhagia, and melæna neonatorum. 7. It appears to be the best remedy at our command in the treatment of hæmophilia, and to be of great advantage for purpura hæmorrhagica, and in hæmorrhagic forms of infectious disease. 8. At present it appears to be contra-indicated in only one condition, viz.: acute nephritis. Joseph Sailer (*Therap. Gaz.*, Aug. 15, 1901).

HÆMORRHAGIC DISEASE OF THE NEWBORN.

Treatment.—Hæmorrhagic disease of the newborn has been successfully treated as follows in two cases: Fluid extract of ergot (2-drop doses) was given and vomited, as also was tincture of the chloride of iron by the second case. An enema of weak astringent solution was tried on Case 1. It caused an increase of bright blood and great tenesmus. Gelatin was given and retained, and with the addition of 5 drops of brandy every hour was the only treatment persisted in.

In Case 1 gelatin tubes, containing about 1 drachm, were heated and diluted and fed to the child. The effect was very perceptible. After this gelatin was given every two or three hours. In the second case only gelatin was tried. Cox's gelatin soaked and made of the consistency of wine-jelly was used and fed to the infant, a drachm with 5 drops of brandy every hour for 12 hours, then every 2 hours; later every 3 hours for several days. There was no vomiting, and the hæmorrhage decreased rapidly after the first doses. In both cases the infants were kept warm and absolutely still, changed without handling, and were fed "weak formula" milk or diluted mothers' milk, with the dropper. The extreme severity of these cases and the uniformity of the two results under this treatment seem to indicate that there is some strong ground for the theory that unnatural fluidity of the blood is one cause of hæmorrhagic disease of the newborn.

The gelatin treatment has in its favor that no quantity seems to disturb the child; it is at hand in most houses, and certainly meets, clinically, the indications of increased fluidity as a cause of certain cases of hæmorrhage in the new-

born. Adelaide Brown (Pediatrics, Aug. 15, 1901).

HERNIA, UMBILICAL.

Treatment.—Umbilical hernia of varying size is of very common occurrence in infants. It is ordinarily cured by adhesive-plaster strapping. The younger the child, the earlier the cure is to be expected. The fear of recurrence or failure is slight. J. C. Hubbard (Boston Med. and Surg. Jour., July 25, 1901).

HYDROCHLORIC ACID IN THE GASTRIC CONTENTS. A NEW METHOD OF DETERMINING APPROXIMATELY THE AMOUNT OF.

The solution of dimethylamido-azo-benzol recommended by Toepler is employed, and the procedure is as follows: A minute quantity of stomach-contents is placed by means of a glass rod upon a strip of dimethylamido-azo-benzol paper ($1\frac{1}{2}$ by 8 centimeters). If the paper turns red, 1 drop of the contents is diluted with 2 drops of water in a small porcelain dish. A glass rod is dipped into the mixture and the test-paper again touched. If it still turns red, 1 or 2 more drops of water are added and the procedure repeated as before. This is done until only a slightly red or almost no red color is produced by the mixture upon the test-paper. In this way the amount of dilution required for a trace reaction with the test-paper is determined. It is clear that, the more HCl there is in the stomach-contents, the more they can be diluted, still giving a trace reaction with the dimethylamido-azo-benzol paper.

Summarizing the results of twenty-one cases, it is fair to assert that in a majority of cases there exists a certain relation between the acidity and the

amount of dilution necessary to produce the end or trace reaction with the dimethylamido-azo-benzol paper. A dilution of from 3-6 would correspond to a normal, under 3 to a subnormal acidity, and over 6 to hyperacidity.

The numbers given refer to the examination one to one and one-half hours after Ewald's test-breakfast. If one has to test after other more complicated meals (a test-dinner, etc.), hyperacidity would be indicated by somewhat smaller amounts of dilution (from about 6 times on), since one estimates approximately only the free HCl, and the amount of the latter is relatively small after meals containing much albumin.

The method just described of approximately determining the quantity of free HCl in the stomach-contents will be of value in the following two conditions: 1. In examinations with the stomach bucket, or where from other causes only small quantities of gastric contents are at our disposal. 2. In cases in which it is of importance to obtain at once an idea regarding the amount of acidity and the necessary solutions for titration are not at hand. Max Einhorn (*Med. News*, July 20, 1901).

HYPNOTICS, THE CLINICAL VALUE OF SOME OF THE NEWER.

In contrasting the relative merits of three hypnotics—dormiol, chloretone, and hedonal—a few of their general characteristics may be touched upon:—

1. Ease of administration. On account of its perfect solubility and more agreeable and more easily disguised taste, dormiol is taken much more readily than either of the others.

2. Safety. In personal hands both dormiol and hedonal have proved perfectly safe in any ordinary dosage, even when given repeatedly to feeble or

exhausted patients. With chloretone, symptoms of dangerous depression have been seen; besides which its disagreeably by- and after- effects render its field of usefulness more restricted.

3. Rapidity of action. In this respect dormiol stands easily first. Next, perhaps, comes hedonal, with chloretone a later, but more powerful, third.

4. Character of sleep. On account of the accompanying subjective symptoms chloretone ought not to be employed for simple sleeplessness, but is sometimes invaluable where pain or bodily discomfort is a causative factor. Hedonal and dormiol are more purely hypnotic in their action, and both give refreshing rest, both physical and mental. The duration of the sleep with dormiol is liable to be longer than that with chloretone, and much longer than that produced by the use of hedonal.

5. General utility. Hedonal is applicable to slight forms of insomnia unassociated with bodily pain or severe mental excitement. It is valuable as a placebo, having a direct, though not very powerful, tendency to produce sleep.

Chloretone is a powerful and pretty certain hypnotic if given in sufficient doses. Its general use to produce sleep, however, should be discouraged on account of its secondary effects. But these very defects may make it especially valuable in certain selected cases. Its action should always be carefully watched.

Dormiol, while the most powerful sedative possessed, answers well the requirements for a generally serviceable hypnotic. A. E. Brownrigg (*Boston Med. and Surg. Jour.*, July 18, 1901).

INTESTINAL FERMENTATION.

In a study of intestinal fermentation the following conclusions seem warranted:—

1. Traces of oxalates are found normally in the urine, having been taken in with the food.

2. Oxalate crystals usually denote gastro-intestinal fermentation. Foods rich in oxalates must be excluded.

3. Abundance of oxalate crystals does not signify high acid percentage, because in addition there may be oxalate of lime in solution.

4. Indican is often, but not necessarily, associated with oxalate crystals.

5. Hyperacidity on a meat diet contributes to putrefaction, whether due to excess of hydrochloric acids or acids of fermentation.

6. In certain disturbances of the gastro-intestinal tract due to excess of hydrochloric acid or to excess of fatty acids, in which there is fermentation, indican and oxalic acid are increased.

7. The symptoms of oxalic-acid diathesis associated with indicanuria are not due to the oxalic acid nor to the indol, but to other products formed in the process of fermentation, and therefore the oxaluria and indicanuria are valuable as indicative of a putrefaction, to which the symptoms are to be referred.

The study of oxaluria and indicanuria holds open a rich field for investigation. In the intestines there are various poisonous bodies produced directly associated with the formation of oxalic acid and the aromatics. These, when better understood, will lead to new ideas, thereby giving a better understanding of chronic diseases, such as rheumatism, gout, nephritis, etc. J. A. Wesener (Chicago Med. Recorder, July, 1901).

KIDNEY DISEASES, EMPLOYMENT OF DIURETICS IN.

In studying the condition of the kidneys with reference to the employment

of diuretics, the following conclusions may be drawn:—

1. Except in the case of the irritant epithelial diuretics (turpentine, cantharides, etc.) the entire class of diuretics may be said to exert their effect upon the urine by acting indirectly through the circulation.

2. Owing to the necessity for sparing the kidneys all irritation, drugs given for diuretic purposes should act indirectly rather than directly; consequently the secretory diuretics are contra-indicated in irritative and inflammatory renal conditions.

3. In functional urinary disorders diuretics are mainly useful to overcome concentration and hyperacidity of the urine. To accomplish this, simple diluents and salines are best adapted.

4. In acute nephritis saline diuretics are permissible throughout the entire course of the disease, and exert a beneficial influence by increasing elimination and clearing the tubules of inflammatory debris. Subcutaneous saline infusion constitutes our most powerful eliminant in desperate cases.

5. In chronic nephritis the cardiovascular diuretics are most useful, owing to the fact that oliguria and dropsy are usually the result of circulatory failure. The dropsy under such circumstances, being of cardiac origin, may be benefited by cardiovascular stimulants, provided the kidneys are not too badly damaged.

6. Dropsy of purely renal origin is not amenable to favorable influence by diuretics.

7. Although the morbid process in the kidneys may furnish us with but primary inspiration to diuretic medication, it is the condition of the heart and circulatory apparatus in most cases that determines the choice of an agent. A. R. Elliott (Med. News, Aug. 10, 1901).

KNEE-SYMPTOMS, ABNORMAL CONDITIONS OF THE FOOT AS CAUSE OF.

Attention is called to a class of cases which has received scant attention from writers, and in which pain in the knee, accompanied or not by perceptible organic changes, is to be ascribed to a pathological process situated at a distance from this joint, especially in the foot and ankle.

The conditions spoken of are characterized chiefly by pain, situated in various parts of the joint and sometimes accompanied by pain in the hip also. Pain in the hip is, however, frequently wanting. Physical changes in the knee of evident character may be present or not, and the pain may overshadow entirely the symptoms arising from the foot. In fact, the condition of the foot may be entirely painless, and the patient unaware of any abnormality there existing. Unless the condition of the foot is inquired into, the nature of the knee-symptoms may remain obscure and give rise to erroneous diagnoses of rheumatism, functional joint disturbance, or even hip-joint disease.

In personal limited experience the patients have, with two exceptions, been of the female sex, and for the most part near either the onset of the catamenia or the menopause, respectively. They have mostly been also of so-called nervous temperament. In no instance has a case been considered in this category unless the disappearance of the knee-symptoms as the result of treatment directed to the foot seemed to justify it.

The conditions of the foot held accountable for the knee-symptoms are three: the contracted foot (non-deforming club-foot of Shaffer); the weak or pronated foot without sinking of the arch; and the typical flat-foot, with its

accompanying pronation. The knee-symptoms have, for the most part, consisted of pain unaccompanied by marked physical changes. A. H. Freiberg (Cleveland Jour. of Med., July, 1901).

"LIMPING," INTERMITTENT.

When a man complains that during the exercise of walking pains or paresthesia appear in the legs, and that these pains disappear on resting, only to reappear after the walking has been again indulged in, the practitioner should examine the arteries of the feet to find out whether there is pulsation or not. If there is no pulsation in the dorsalis pedis artery (*inter alia*), the evidence is conclusive that the disease is "intermittent limping," and not rheumatism, sciatica, or neuralgia. The patients are generally between thirty and forty years of age. In personal experience, gangrene occurs in 28 per cent., and even when the disease does not lead to mortification is a serious progressive one. It sometimes remains stationary for many years. Reasonable local and general means to allay symptoms, good diet, an attempt to establish a collateral circulation, and rest are the indications to be followed in treatment. S. Goldfiam (Neurol. Centralb., March 1, 1901).

MALARIA.

The same type of malarial fevers are found in the Philippines as are found in other tropical countries, namely: the æstivo-autumnal, the tertian, and the quartan. There was this important *difference* from other tropical countries, however, which explains in part the comparative mildness of the Philippine malarial fevers. The predominating type of malarial fevers reported in other tropical countries is the æstivo-autumnal.

In the Philippines a much larger percentage of the malarial fevers appears to

be due to the tertian parasites than has been reported by investigation in the other tropical countries. In 223 cases of malarial fever in which the parasites were found in the blood, in cases observed in the First Reserve Hospital, Manila, P. I., there occurred the aestivo-autumnal parasites in 166, the tertian in 53, the quartan in 1, and the tertian and aestivo-autumnal combined in 3.

Taking the pure infections (220 cases) alone, the tertian parasite occurred in 53 out of 220, or 24 per cent.; the quartan in less than one-half of 1 per cent.; and the aestivo-autumnal in 75 per cent. J. J. Curry (Boston Med. and Surg. Jour., May 9, 1901).

One sees it generally stated and accepted that the adult mosquito is able to survive the rigors of winter in a state of hibernation, and when the season becomes warm turns active, lays eggs, and so provides for the perpetuation of the species. So far as is personally known, there is no actual proof of this. From observations made—the extreme prolongation of the larval stage and the power shown by the larvæ to withstand low temperatures—it seems reasonable to infer that it is really the larvæ that provide for the continuation of the species through winter in these northern countries, and probably throughout Europe. It is during winter that one may hope to do most toward exterminating mosquitoes. Larvæ could be searched for and found with greater ease than those mosquitoes that are said to hibernate in out-of-the-way corners.

Kerosene-oil is a most efficient larvicide. The usual directions are that the oil should be applied and renewed from time to time. This intermittent application, however, is not right. Better results would follow by suspending a vessel containing the kerosene-oil over the

water, and arranging for the discharge of oil a drop at a time. The outflow being regulated so that there would be a continuous film of oil on the surface of collections of water near dwellings that cannot either be drained off or filled in. M. J. Wright (Brit. Med. Jour., Apr. 13, 1901).

In a native Indian population in a malarious region, while the adults may be perfectly free from the disease, an enormously large percentage of the young children contain the parasites in their blood. Though the disease appears to be much less dangerous to the native children than to new arrivals, implying that they have a degree of congenital immunity, the parasites in the young natives are perfectly efficacious for causing dangerous fever in white people when conveyed to them by mosquitoes. Hence the important practical inference that white people settling in a malarious tropical region should not, as they now commonly do, plant their houses near native settlements, but place them at some considerable distance from them, about a quarter of a mile being apparently sufficient. Lord Lister (Indian Med. Record, July 17, 1901).

PERICARDIUM, TUBERCULOSIS OF THE.

The salient conclusions to be drawn from a study of tuberculosis of the pericardium may be stated as follows:—

1. Tuberculosis of the pericardium is comparatively common.
2. It may be primary in the clinical, rarely in the pathological, sense, or it may be secondary.
3. The primary form is either an hæmatogenic infection or is the result of extension by contiguity from some trivial focus.
4. The most frequent source of infec-

tion is a tuberculous mediastinal or bronchial lymph-gland.

5. The primary form is usually chronic, and appears as an obliterative pericarditis.

6. In a large percentage of cases there is an associated mediastinitis, with adhesions to pleura, sternum, and ribs.

7. The symptoms are those of adherent pericarditis or mediastino-pericarditis.

8. In every case of obliterative pericarditis of obscure etiology tuberculosis should be suspected, particularly if there are no endocardial murmurs.

9. The diagnosis of tuberculosis of the pericardium can usually be made only by excluding other causes, except in rare instances of successful animal inoculation with fluid obtained by tapping a pleural cavity.

10. Tuberculous pericarditis may not present any characteristic features at autopsy; hence, microscopical examinations should be made in every case of adherent pericardium before tuberculosis is excluded.

11. In rare cases a clinically primary tuberculous pericarditis is acute, the exudate being sero-fibrinous, hæmorrhagic, or purulent. David Riesman (*Amer. Jour. of the Med. Sciences*, July, 1901).

PRICKLY HEAT.

Prophylaxis.—Fresh cocoa-nut oil rubbed into the skin is of value. The fear of the oil spoiling one's clothes is groundless. The skin absorbs the oil; after two or three minutes' gentle rubbing the oil disappears, and one can rub himself with a towel without any coming off, unless, of course, a great excess has been applied, when the towel will remove the excess.

The best time to put it on is before going out for the evening's exercise.

One should strip, pour a little of the oil into the palm of the hand, and rub it over the body from the neck to the ankles. It is not advisable to use sponge or rag.

When coming in to dress for dinner, the bath is taken, no soap being used. There is no reason why the oil should not be used twice a day, if necessary, about a tablespoonful each time.

By adopting these simple means, many in Barrackpore have been saved from the inflictions of prickly heat during the hot seasons. R. R. H. Moore (*Indian Med. Record*, June 12, 1901).

RECTAL PROLAPSE.

Treatment.—The treatments of rectal prolapse recommended are:—

1. For prolapse of the mucous membrane only: reclining posture, adhesive straps, cauterization, or amputation.

2. For reponible, non-ulcerated prolapse of all the coats of the rectum and colon: invagination, removal of the cause, if possible, massage and electricity being tried. Should these fail, then one should resort to colopexy.

3. For incarcerated irreponible ulcerated prolapse: circular resection, according to the technic of Mikulicz and Nicoladoni.

The operation of colopexotomy, procto-coccy-pexy, procto-sarco-coccy-pexy, procto-sarcopexy, Gersuny's twist, and the circular suture of Thiersch are rarely indicated. J. Rawson Pennington (*Cleveland Med. Gaz.*, Aug., 1901).

SCARLATINA AND MEASLES, HIGH TEMPERATURES IN.

Treatment.—As bearing upon this question of high temperatures, the eruption, swellings, and various sequelæ of the exanthematous diseases, especially scarlatina and measles, the following observations may prove of value:—

1. Temperatures of 103° to 106° F. in scarlatina and measles decline promptly by one or more degrees from an injection of a pint or more of cool water containing 2 to 10 grains, according to the age of the patient, of sulphocarbonate of soda per rectum.

2. In the same conditions and even in the same cases the cold bath has not acted with so much or so happy effect.

3. When the enema has been ejected without accomplishing a movement of the upper bowel, melioration of temperature has nevertheless been noted.

4. Offensive gases and intestinal dejecta are often in evidence from these enemas, and a more notable reduction of temperature then ensues. To secure this effect repeated attempts may be required.

5. Sulphocarbonate of soda and other suitable intestinal antiseptics prove useful when given by the stomach also.

6. Many of the children having scarlatina and measles with high temperatures are observed to have one or more carious teeth in the mouth, generating toxic influences for the lower digestive tract. It is of interest to note here that these diseases prevail especially during the irritable periods of teeth formation, growth, decay, and exuviation.

7. The mouth and pharynx, the proximate cavities of the digestive tract, being accessible to observation and treatment, should be frequently cared for by brushing or wiping the teeth and by cooling and non-irritating washes and gargles of antiseptic quality, especially during periods of high fever.

8. Post-scarlatinal nephritis should always be in mind when directing treatment of this disease. Intestinal antiseptics as it may be promoted, and asepsis as it may be urged by cooling enemas, give aid and comfort to the kidneys, the

daily excretions from which should be carefully and intelligently watched.

9. High post-eruptive temperatures are often and have been repeatedly traceable to infelicities of ingestion and digestion, and are more effectively relieved by prompt and sufficient enemas than by any other treatment.

10. These high post-eruptive temperatures repeatedly rising in the same individual have been accompanied synchronously by sensible increase of submaxillary swelling and tenderness, followed by the quick abatement of these lymphatic swellings along with the reduction of temperature from cooling antiseptic enemas. Arthur de Voe (*Pediatrics*, Aug. 1, 1901).

SEASICKNESS.

Certain precautionary methods adopted by experienced travelers almost completely prevent their being affected to any extent, namely: by taking a saline purgative the day or so before traveling, by adopting the recumbent position, and on all occasions avoiding oleaginous smells and the company of those who are seasick, as example seems a powerful excitant to seasickness.

There are also certain stomatic sedatives which, if taken at once, undoubtedly tend to prevent sickness, notably potassium bromide and some similar drugs; but no drug is infallible. To those who suffer principally from gastric phenomena, the best advice is that before starting on a voyage they should provide themselves with a good flannel roller bandage twelve feet in length and six inches in breadth, and wind it round the whole width of the abdominal region; this will frequently afford great comfort by preventing the contents of the viscera from undue movement.

J. R. Wortabet (*Brit. Med. Jour.*, June 29, 1901).

SPASTIC ILEUS.

As thorough and as complete a subjective and objective examination of the patient should be made as is possible. The blood, the urine, the gastric contents, the fæces, should all be the subject of patient and diligent search. When one has to deal with neurasthenia, or hysteria, hygienic conditions must be strictly carried out. And in many of these cases the only salvation is a rest-cure. The proper and judicious use of hydrotherapeutic measures, in some cases the wet pack; in others the spray, in its many forms; electricity, general and local; massage,—being careful, however, not to begin abdominal massage too early in such cases where there is hyperæsthesia of the cœliac or other ganglia or plexuses,—passive and active movements, all these measures will, in properly selected cases, stand one in good stead. It is just as important also for many of these patients that their moral as well as their physical tone is built up. During acute attacks, and when once one feels sure that he has to deal with a spastic, and not a mechanical, ileus, then the local application of hot moist stupes, together with carefully conducted intestinal lavage, and if vomiting is obstinate, or faecal vomiting supervenes, gastric lavage may bring about the desired result.

Purges and all gastro-intestinal irritants are to be avoided. Antispasmodics, such as extract of belladonna, atropine, or camphor, and the coal-tar products seem at times to relieve the spasm much more quickly and efficiently than opium. S. Talma found antipyrin and quinine signally successful in many cases where the sympathetic ganglia and their plex-

uses were involved. In neurotic people is frequently noticed a peculiar idiosyncrasy as to coal-tar products, especially in reference to their depressing effects, and too large doses of such remedies should be avoided at the start.

If in an acute attack of spastic ileus all medical measures seem unavailing, and the patient's condition becomes more serious, laparotomy should be performed, but it is best long before this to have had the sound advice of a consulting surgeon. Edward Quintard (*Phila. Med. Jour.*, July 27, 1901).

TONSILLITIS, FOLLICULAR.

Treatment.—At the onset it is well to give a brisk saline purge, treating the febrile symptoms with one of the antipyretics. Phenacetin, 5 grains; codeine sulphate, $\frac{1}{4}$ grain, administered every three hours, afford great relief from the headache; and salol, in doses of 3 to 5 grains every four hours, is the most satisfactory remedy for the aching joints.

In the follicular variety, if begun in time, ice applications, both internally and externally, may sometimes abort an attack. After it is well established there is no better treatment than a spray of equal parts of hydrogen peroxide and water to clean off the exudate, and as a germicide, followed by a mixture of the tincture of ferric chloride and chlorate of potash in equal parts of glycerin and water, to be applied to the tonsils and surrounding inflamed surfaces, with a camel's-hair brush, four or five times a day. In the intervals, some demulcent application, as a spray of menthol or thymol in liquid vaselin, will lessen the difficulty in swallowing. The ammoniated tincture of guaiacum, given internally and as a gargle, is most warmly recommended by many as a specific. Counter-irritation externally to the throat is de-

sirable in this form also, and is best produced by rubbing with cloths sprinkled with oil of turpentine or spirit of camphor. The diet should be semisolid or liquid. Following this line of treatment, the disease seldom continues longer than three or four days. A. L. Gray (Va. Med. Semimonthly, July 26, 1901).

TYPHOID BACILLI IN THE BLOOD.

Typhoid bacilli occur in the blood with much greater frequency and during a much longer time through the course of the disease than was formerly supposed. The conditions which favor their presence, why they are found at times in mild cases and are absent in more severe ones, are questions which must yet be solved. That cultures from the blood in typhoid fever have very definite clinical importance, especially where the Widal reaction is delayed, as is so often the case, is evident. From personal experience, the use of considerable amounts of blood, diluting very largely in liquid media, and, on account of the use of the latter, especial care to avoid contamination, are the points of chief importance. R. I. Cole (Johns Hopkins Hosp., July, 1901).

UTERUS, CANCER OF.

Cancer of the neck of the womb is practically incurable. This statement is made advisedly, and the proof of its correctness lies in the reports of results of treatment from all quarters of the world.

It is not possible to state with any degree of accuracy the exact proportion of such cases which it is possible to save, but judging from the past it is less than 5 per cent.

There are three great symptoms of cancer: pain, odorous discharges, and hemorrhage. These, taken in conjunction with progressive loss of flesh and strength, present a picture which be-

comes so significant that no one is justified in failing to see their significance. This picture complete is, however, the picture of well-advanced cancer, and is never present in the disease in its early stages. *Hæmorrhage*, with possibly beginning loss of flesh and strength, is the diagnostic sheet-anchor in the early stages. No one knows how early bleeding begins, but begin it does *very* early, early enough to give plenty of warning of what is coming. In this connection there are one or two circumstances which should be considered almost pathognomonic, so few are the exceptions. They at least should make the suspicion so strong as to demand a most careful and immediate overhauling of the patient.

A woman once having passed the menopause, the menstruation having entirely ceased, and a year or two, or six or more years later but a single show of blood from the genitalia be noticed, no matter from what supposed cause (traumatism excluded), cancer will be found with but rare exceptions. Personally, an exception has never been found.

Even during the menstrual life of a woman, if a blood-stain be noticed after coition.

If after the use of a syringe a stain appears or the water is bloody.

If following excitement or exercise, or from any similar cause.

If a slight stain be observed in the morning on arising or following constipation (reasonable causes being excluded), cancer should always be suspected, and a mistake will rarely be made. It is true some non-cancerous ulceration will cause this symptom, but rarely.

The microscope as a means of diagnosis is vastly inferior to clinical symptoms and observation. J. M. Baldy (Amer. Med., Aug. 3, 1901).

VENTROSUSPENSION OF THE UTERUS.

An operation for ventrosuspension of the uterus in two hundred and twelve cases may be described as follows:—

The preparations are made in the usual manner for opening the abdomen. A median incision is made in the abdominal wall from 1 to 2 inches in length, ending $\frac{1}{2}$ inch above the symphysis; the peritoneum is caught between artery-forceps and opened. The index and middle fingers are introduced into the abdominal cavity and the position of the uterus ascertained. The tubes and ovaries are then brought up into the incision and examined. If adhesions are present, they are broken up, if possible, with the fingers. When they are too resistant to be separated in this way, a knife or scissors is used. The fundus of the uterus is lifted up and brought well forward, its posterior surface presenting at the incision. A curved Kelly needle, carrying a No. 3 Tait silk suture, is passed through a few fibres of the rectus muscle and the peritoneum on one side, immediately above the lower angle of the incision. The needle is then passed through the tissues of the fundus uteri, a little posterior to a line joining the uterine cornua. The amount of uterine tissue included in this suture is $\frac{1}{4}$ inch in breadth and depth. The needle is then passed through the peritoneum and

a few fibres of the rectus muscle on the opposite side. A similar suture is passed $\frac{1}{3}$ inch above this in the same manner. It is of great importance in tying these sutures that the uterus is brought firmly in contact with the peritoneum, and also that there are no intestines caught between the uterus and the abdominal wall. To facilitate this, the assistant introduces a finger behind the fundus and lifts it in firm apposition to the peritoneum until the two sutures are tied, being careful also that the intestines are free. The peritoneum is now closed by a continuous silk suture, the fascia by catgut, and the skin by an intracutaneous suture.

This operation differs from other modes of ventrosuspension in that it includes in the suture a small amount of muscular tissue.

Out of 212 women operated on, 129 were cured, 53 improved, 30 not improved, 20 have become pregnant, and 10 have miscarried; there has been 1 death which was avoidable. Hernia has not followed the operation in any of the cases. The results obtained from these cases demonstrate that it is wholly unnecessary to include the fascia of the rectus muscle, a broad surface of uterine tissue, or to scarify the uterus in order to gain sufficient adhesion. It is from such procedure that complications following labor have resulted. R. F. Woods (Amer. Med., Aug. 17, 1901).

Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following monographs:—

The Functional Tests of Hearing. By William Lincoln Ballenger, M.D., Chicago, 1901.—An Investigation of a Pathogenic Microbe (*B. typhi murium*, Danyz) Applied to the Destruction of Rats. By M. J. Rosenau, U. S. Marine Hospital Service, Washington, D. C., 1901.—Tuberculosis of Cattle and the Pennsylvania Plan for its Repression. By Leonard Pearson, B.S., V.M.D., and M. P. Revencel, M.D. With a Paper on Tuberculosis of Cattle and its Repression in Denmark. By Prof. B. Bang. Commonwealth of Pennsylvania, Department of Agriculture, 1901.

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Cyclopædia of the Year's literature.

CARCINOMA.

Diagnosis.—Powers¹ thinks the delay in diagnosis of carcinoma may be corrected by a systematic instruction of the laity through suitable lectures, magazine articles, and the like. If the blood exhibits no giant and nucleated forms of

red corpuscles and no leucocytosis, pernicious anæmia may be excluded. Tentacular and pseudoparasitic forms of red corpuscles, with abundant hematoblasts, point to cancer. Marked anæmia with-

¹ Jour. Amer. Med. Assoc., Sept. 14, 1901.

out anæmic murmur suggests cancer. Hemoglobin may be reduced in simple gastric ulcer as well as cancer. Of seventeen cases of cancer of the stomach, a digestion leucocytosis was found in four, and hydrochloric acid persisted in certain instances. The cancer-serum is prepared from the parasite of the so-called cancer of trees, and is without effect when injected into animals; but, in man and animals with cancer, injections produce a rise of temperature of from one to three degrees in from two to four hours. Larger doses produce chills, rapid pulse, cardiac palpitations, headache, and thirst; the crisis terminates at the end of some hours in polyuria and profound sleep. Trial excision should always be avoided, if possible, and it is best to always be prepared for immediate operation.

Etiology. — Lengrissek² notes the histories of 31 cases of new growth in support of the contention that trauma is the direct cause of tumor-formation in a certain number of instances. Twelve were examples of carcinoma, 19 of sarcoma. The youngest suffering from carcinoma was aged 32. In 18 cases the growth followed a single injury, and among these were 2 cases of carcinoma and 13 of sarcoma in which the injury presented itself as the direct cause of the disease. In 13 cases of repeated trauma sarcoma occurred 4 times, carcinoma in 9. In several cases the injury was followed by suppuration.

Brosch³ concludes that the essence of the process of the traumatic origin of tumors is a destructive influence reacting upon a tissue in which a productive process is going on (the most simple cases may be postulated in this way: trauma-productive process, added trauma, tumor-formation). By "productive process" is understood "the new

formation of cells whose number and powers of proliferation overstep the bounds of physiological repair." Productive processes complicated by secondary trauma result in carcinoma when the surface is injured, and in sarcoma when the deeper tissues are concerned. The more frequent occurrence of carcinoma at the higher ages is very possibly to be accounted for by the fact that old people are not so subject to severe injuries as the younger, and that in consequence traumata in their case are usually superficial.

Behla⁴ thinks, from various researches about the supposed cause of cancer, that suspicion has been thrown upon the water in stagnant pools, ponds, and ditches which are surrounded by wood or brushes on their banks; and this may, with great probability, be regarded as the bearer of the cancer-germ. Cancer may also be derived from vegetables, so that salads and raw vegetables must not be washed with such water. The baskets, sacks, etc., in which fruit is stored are often kept in damp, unclean rooms, cellars, outhouses, etc., where mold is prevalent.

Heredity undoubtedly plays an important rôle in the etiology of carcinoma. Marriage between near relations is blamed. Infection may be conveyed by the secretions, discharges, blood, etc., from cancer by means of fingers, instruments, pipes, drinking-vessels, etc.

D. Maragliano⁵ examined the blood in 33 cases of cancer of various organs to determine the presence or absence of micro-organisms. Of 33 examined, 9 gave positive results. In all the 9 ulcer-

² *Dent. Zeit. f. Chir.*, lii, p. 379, 1900.

³ *Virchow's Archiv*, B. cxii, H. 1, 1901.

⁴ *Deutsche med.-Zeitung*, No. 45, 1900.

⁵ *Gazz. Degli Osped.*, Jan. 13, 1901.

ation had occurred in the growth, but there was no rise of temperature or evidence of septicæmia. The organisms found were varieties of staphylococcus. Their presence possibly is one of the factors in the causation of malignant cachexia. No bacteria were found in the blood of those cases where the cancer had not ulcerated.

According to C. B. Keetley,⁶ carcinoma is caused by a living organism which flourishes in either the secretions or the cells of the skin-glands: *e.g.*, milk, butter, cheese, sebaceous material, and sweat. Primary cancerous infection in places which are not accessible to milk and its products may be due to conveyed infection via the lymphatics. The secondary carcinoma implies that not only the cancer-germ, but the epithelium in which it lives, have been conveyed from one part of the body to another. It is important to remove chronic inflammations, suppuration, and ulcerations to avoid well-known sources of irritation of skin or mucous membrane.

J. G. Clark⁷ says in June, 1896. Leopold and Rosenthal described cells in carcinomatous tissue which showed independent amœboid movements. Rosenthal found in fresh carcinomatous tissue round bodies filled with yellowish angular or oval granules, of a glistening appearance. These bodies appeared to move about in the cells and escape into the surrounding fluid; their movements were peculiar and very active. When not too closely crowded together in the body of the cell, they were in active motion. After watching these granules for a sufficient time one would be seen to escape, breaking through the cell-membrane; this would continue for hours until the cell was empty. This expression of the granules was sometimes noted immediately after the preparation of fresh

specimens, and sometimes in those which had been imbedded in paraffin for three days.

Since this communication Leopold claims to have obtained pure cultures of blastomycetes from human carcinoma, which were experimentally transplanted into animals and produced malignant growths, from which the organism was again recovered. Fresh carcinomatous tissues were studied, not only in sterile culture-media, but also in macerating fluids, by which means the cells were digested, leaving the parasites unchanged. The best culture-medium was found to be acid gelatin, which is not liquefied by blastomycetes.

The question as to whether they bear an etiological relation to the development of cancer, as is thought by Leopold, Clark does not regard as conclusively settled. He believes that there are problems in the origin of malignant growths still unsolved, but thinks that we may be on the verge of a final discovery along these lines.

After three years' work in the New York State Pathological Laboratory of the University of Buffalo, H. R. Gaylord⁸ has found what he regards as the cause of cancer. In all the cases of cancer so far examined it has been noted that by fresh methods the organisms can always be found. These bodies resemble fat in the fresh state. It was only when the ether test and the osmic-acid test had been applied that it was discovered that they were not particles of fat. He next discovered that he could crack their edges with the cover-glass. They were then injected into the abdominal cavities of animals. Most of the animals devel-

⁶ *Lancet*, Aug. 31, 1901.

⁷ *Progressive Med.*, June, 1901.

⁸ *Amer. Jour. Med. Sciences*, May, 1901.

oped peritonitis, and large quantities of these bodies could be obtained from the peritoneal fluid. The round form may be observed to develop under the cover-glass. They can be found in every cancer if properly sought for, and can be injected into animals and be recovered. They also change their form.

One case studied was a primary growth, an adenocarcinoma. This had spread, involving the greater portion of the peritoneal surface, with infiltration of the omentum and mesentery. The greater portion of the tumor had undergone mucoid degeneration, and the peritoneal cavity was filled with clear, straw-colored fluid. The patient was opened aseptically. A test-tube of this fluid, which was removed through a sterile tube, and which remained bacteriologically sterile after an incubation-period of thirteen days, contained a large number of small hyaline bodies, which were observed under the microscope to increase in size and change their form and pass through a cycle of development to what appeared to be a spore-forming stage. This was injected into three animals: two, a dog and a guinea-pig, in the peritoneal cavity; one, a guinea-pig, in the jugular. The guinea-pig and dog which were inoculated in the peritoneal cavity developed no tumor-formation, but a marked peritonitis and enlargement of the regional lymph-nodes. The abdominal cavities of each animal contained a small amount of fluid; and in this fluid were detected the characteristic spherical bodies, nucleated bodies, and scars filled with the granules which were present in the primary case.

A careful examination of a large number of tumors, including those removed by operation, shows that in all rapidly-growing tumors, especially when of large size, a great number of organisms are

present. Small tumors, as a rule, contain only the smaller forms of the organisms. After comparing tumors removed by operation and those from cadavers it becomes evident that the organisms either increase very rapidly during the period just before death or that they proliferate in the tissues after death. In two cases of large-sized tumors, which immediately after operation contained a predominating number of the small forms of the organisms, and which were retained sterile, the following observations were made:—

An examination of the successive scrapings from the tumor, several hours apart, in each case showed that the relative size of the organisms gradually increased. In ten hours the amoeboid forms were greatly increased in number, and after twenty-four hours the spore-sacs of the organism were present, for the first time, in large numbers. Continuing the observation up to a period of about three days, it was observed in these two cases that the sacs were ultimately replaced by groups of hyaline bodies, which were considerably larger than those which the sacs originally contained. Thus, the so-called fatty degeneration of carcinoma was shown, at least in some part, to be due to the presence of the various forms of the organism which have been mistaken for fat-droplets and infected epithelial cells which were supposed to be in an advanced stage of fatty degeneration.

Gaylord has also determined that in the center of carcinomata which has undergone degeneration the fluid, the so-called cancer-milk of the older writers, consists practically of a pure culture of these organisms. The fluid from malignant ovarian cysts likewise contains a large number of the organisms, and the peculiarly characteristic mush found in

the cavities of certain adenocarcinomata of the ovaries is likewise largely composed of the various forms of the parasite. This shows that bodies identical in appearance to those found in the peritoneal fluid of the first case mentioned can be found in all scrapings of cancer. The small, highly-refractive form which in suspension possesses a characteristic oscillating motion, the larger pale forms projecting pseudopodia, and the saccular forms containing highly-refractive spherical bodies could be detected with equal facility in the fresh scrapings of any malignant tumor.

J. George Adami⁹ says whatever the origin of the tumor proper, however it is started, what makes the tumor is the assumption by the primary cells of that tumor of the habit of growth in place of the habit of work, and, according to the extent of this replacement, so do we get the various phases of tumor-formation, from the most benign to the most malignant.

The various points brought forward one after another, in arriving at this conclusion, may be summed up as follows:—

1. The catabolic activities of the cell are of two orders,—those determining the relationship of the cell with the exterior, and those that are vegetative,—determining the continued existence and multiplication of the cell, the former excited by stimuli of various orders from without, the latter only indirectly so excited, being more directly called into play by conditions obtaining within the cell.

2. The controlling agency in at least the higher catabolic activities of the cell, both “functional” and “vegetative,” is the nucleus, and nuclear activity is accompanied by breaking down and discharge or by rearrangement of the nuclear molecules.

3. The changes which occur in the nucleus during the active performance of the specific functions of the cell are of a character so different from those observed during the process of cell-division that proliferation and active performance of specific function, the one precluding the other, are obviously to a large extent incompatible. The cell engaged in the active performance of functions in response to external stimulation cannot simultaneously proliferate.

4. It follows, therefore, that active cell-division and cell-proliferation occur only in conditions in which the cell cannot fully utilize the assimilated material (and the energy stored up in the assimilation of that material), in the performance of its specific functions.

5. Such conditions are to be met with where the tensions acting on the cell are reduced, and certain energies which before were necessary to counteract opposing forces are freed and become thus capable of diversion from their purpose, or, again, where stimulation from without results in increased assimilation and storage of nuclear and cell-material which now from any condition cannot be utilized in the performance of specific function.

6. In either case the cells will continue to proliferate so long as the primary modification of physical relationship or the primary stimulus continues to act, so long as there is adequate nutriment, and so long as the tensions exerted upon the cells do not become excessive.

7. Provided that these conditions are observed, the greater the amount of cell-proliferation, the greater the tendency for certain, at least, of the newly-formed cells to be projected from the relations proper to cells of the tissue giving them

⁹ Yale Med. Jour., Mar., 1901.

origin, the less will be the opportunity for such cells to carry on their primordial function, the greater the liability to proliferation.

8. The longer the cells are diverted from their proper specific functions to proliferative activity, the greater the momentum acquired to continue performing the proliferative act until the functional activities are largely suspended and the "habit of growth" is set up.

9. When this "habit of growth" is inaugurated the cells can continue to grow and multiply in the complete absence of those conditions which initiated their proliferation in the first place. And we obtain that purposeless, functionless cell-growth characteristic of the true tumor.

10. According to the stage of cell-development in which this habit becomes impressed upon the cell, so do we have the various grades of benign and malignant tumor-formation.

This theory applies itself to the possible microbic origin of at least certain forms of malignant and other tumors. Thus, according to this theory, microbes and their products may be one of the causes originating localized cell-proliferation in the first place, provided that they bring about stimulation rather than irritation of so mild a type that the cells are stimulated to an increased metabolism which does not go on to exhaustion and excessive breaking down of their protoplasm: provided, also, that the microbes and their products continue in action for a sufficiently long time to set up the habit of growth. It is quite conceivable that such microbes might continue to exist in the tumors they originated, exerting a cumulative effect. The more the cells departed from type, the greater the effect of these microbes and their products in producing a tissue of rapidly-proliferative and malignant type.

This continuance and persistence of microbic action, however, must not be regarded as essential. The very fact that after all these years, and after the hosts of careful observations, we are still in very grave doubt as to whether any of the bodies seen in tumors are really parasites, the fact that no growths of these bodies have surely been obtained outside the organism, and then upon injection have induced tumor-formation, although by no means proof absolute, may be quoted in favor of the view that, if microbes originate malignant tumors, they do not continue in the living state.

I. Lyon¹⁰ has made careful studies of the distribution of cancer in the city of Buffalo during the years 1880-1899, inclusive. There were 2005 cases which could be used for statistical purposes. Of all nationalities, the Irish are the most susceptible to carcinoma. However, a map of the city shows a marked concentration of the disease in the wards inhabited by Germans, and the Germans and Poles, considered together, are distinguished from all other classes by the very high rate of involvement of the stomach, this disease being ten times more frequent among them than among the native-born. About twice as many females are affected as males; but this is not true of the Germans. The disease is increasing, and the proportion of males affected by cancer is greater. The number of cases per hundred thousand of population has increased from 32 to 53.

Treatment. — Wallace Johnson and Walter H. Merrill¹¹ are firmly convinced that, by means of the proper application of the x-rays under conditions of no

¹⁰ Amer. Jour. Med. Sciences, June, 1901.

¹¹ Phila. Med. Jour., Dec. 8, 1900.

practical discomfort to the patient, they can bring about the painless removal of the slow-growing epitheliomas. Their experiments lead them to believe that even in inoperable cases of carcinoma attacking superficial parts it may give great relief from pain, and can even slightly prolong life. As the object is to set up a dermatitis,—the so-called x-ray burn,—the static machine and smaller coils are not applicable. Operators have found that these “soft” or low vacuum-tubes are most likely to produce that peculiar series of local symptoms called variously the “x-ray burn,” “white gangrene,” “focus-tube dermatitis,” etc. For their purpose, the authors select a soft tube, but before using it on a patient its burning time is determined. This is very important, for they have found that, of two equally soft tubes operated on the same current, one may produce a burn in three minutes, while with the other an exposure of thirty minutes may be necessary to effect the same result. They expose to this action not only the area evidently diseased, but also the surrounding tissue for a little distance. The healthy skin beyond is protected by tin-foil of moderate thickness. It is their object to produce a mild inflammation and pigmentation in and about the diseased tissue, gradually increasing its severity until there is a burn of such depth that it will require six weeks to heal on the normal skin. The treatment is then suspended for a month, and, if a complete cure is not in prospect at the end of this time, the process is continued over those parts which still resist. At the time of exposure the patient experiences no uncomfortable sense of heat; in fact, there are no sensations whatever. The time required for the treatment is not burdensome in view of the palliative results which occur almost immediately,

and the permanent benefit obtained in a few weeks.

Jaboulay¹² discovered that quinine taken by the mouth gives good results in cancer. He gives 16 grains daily, interrupting this medication for two days in a week, to avoid intoxication, giving Fowler's solution during this interval. The external application of a 10-per-cent. quinine ointment to cancerous ulcerations is warmly recommended.

In the case of a carcinomatous ulcer Truncceek¹³ cleanses the surface with boric or peroxide-of-hydrogen lotion until slight hæmorrhage is produced. The arsenical mixture is painted over the raw surface and left to dry in the air. No dressings are applied. The wound soon becomes moist and moderately painful. The following day it is covered with a scab. If there is œdema of the surrounding tissues, further treatment is postponed until it has subsided, but otherwise the arsenic is painted over the ulcer daily. The scab, at first superficial and brown, becomes daily thicker and darker, and extends over the whole ulcer until the entire growth is necrosed. Finally a line of demarkation forms, and the tumor can be removed by snipping through any remaining adhesions. The arsenical mixture employed consists of 1 part of arsenous acid in 75 parts of absolute alcohol and 75 parts of distilled water. As the necrosed mass becomes thicker, the strength is increased to 1 part of arsenous acid in 100 or even 80 parts of spirit and water. It is possible, after the mass of the tumor has been cast off, to determine whether the whole has been removed by continuing to paint on the arsenical mixture, or still better at

¹² *La Semaine Méd.*, xxi, No. 9, 1901.

¹³ *Wiener med. Wochen.*, May 11, 18, and 25, 1901.

this stage a 1 in 250 solution of potassium arsenate in equal parts of absolute alcohol and water. If a superficial yellowish-green slough, which can be readily removed without hæmorrhage, is present the next day, all the growth has probably been removed; but, if a dark, adherent slough forms over the whole or portions of the ulcer, and cannot be removed without hæmorrhage, the treatment must be continued until it has separated and the application of arsenic produces no further characteristic necrosis. A clean, granulating wound results, which heals readily. In cases of non-ulcerated superficial cancers it is sufficient to snip off a small piece of overlying skin, and, after hæmorrhage has ceased, to apply the arsenical mixture to the wound every day. The affinity between arsenic and malignant growth results in the tumor being more radically removed than is possible with the knife, and recurrence is seldom, if ever, seen. The method is only suitable for cases in an early stage, when there is no implication of the lymphatic glands. The growth must also be in a position easily reached, such as the skin, lips, and buccal mucous membrane.

In the treatment of cutaneous cancer M. L. Heidingsfeld¹⁴ has had good results with arsenous acid, mixed with equal parts of pulverized gum arabic, to which sufficient water is added to make a paste of the consistency of butter, and enough cocaine crystals to alleviate the anticipated painful reaction. It is expedient to add 10 per cent. glycerin before adding water. The paste is applied directly to the ulcerated surface after being uniformly spread on a piece of muslin or linen, which has previously been carefully adapted to the affected area. It dries in the course of five to ten minutes, and remains firmly adher-

ent until its removal—twelve, twenty-four, or thirty-six hours later—is indicated by the pain, intensity of the reaction, or the degree of the treatment required. The after-treatment consists in the application of simple, soothing, antiphlogistic remedies, in the form of indifferent pastes, Wilson ointment, combined with cold compresses saturated with the solution of alum acetate. The resulting pain is usually slight. There is some reactionary inflammation, in the form of redness and swelling, which is usually limited to the ulcer and its immediate neighborhood.

It is not essential to prepare the surface by the application of caustic potash, in stick or solution, green soap, etc.

In most instances one application of the arsenic has been all that was necessary. Arsenic possesses not only an elective action, exerting its chief influence on the weaker and less stable pathological tissue, sparing the more resistant surrounding normal tissue, but also exerts a specific influence over the cancerous tissue, whereby it inhibits its growth and prevents its further spread and development without entailing its direct destruction.

McGavran¹⁵ states that all weak caustics—for instance, nitrate of silver and mineral acids—should never be employed. Caustic potash, chloride of zinc, and arsenous acid are the three agents that have given the best results. The caustic with which he has had the most experience, and which has given him the best results, is the chloride-of-zinc ointment, or what is known as Bougard's caustic compound. A thick layer is spread on cotton and left in position from ten to twenty-four hours. If the

¹⁴ Jour. Amer. Med. Assoc., July 13, 1901.

¹⁵ Columbus Med. Jour., Nov., 1900.

application has been successful, all of the macroscopical cancer-mass should appear to be necrosed completely and the tissue beyond inflamed. Warm poultices are applied until the slough separates, usually in three days. Few cases require a second application. The ulcer may be dressed with aristol ointment. All exuberant granulations are to be kept in check by the usual methods. It is important to so stimulate the ulcer as not to permit scabs to form.

For the successful use of caustics the physician must be able to recognize the form of tumor, and he must appreciate the manner of extension of growth, and the necessity for prompt and complete removal and destruction of all the pathological epithelium. During the application of the caustic, an hypodermic of morphine may be given every five or six hours.

M. B. Hutchins¹⁶ thinks potassa is the best caustic in the treatment of external cancers. Caustic potash, applied in the stick form, acts rapidly; the pain, while severe, is usually entirely gone in a few minutes, and does not return. In order to protect the surrounding tissues from the effects of the caustic, acetic acid may be used, as it neutralizes the potash, forming the harmless potassium acetate.

P. Coudray¹⁷ has treated a case of cancer of the breast by injections of a 5-per-cent. solution of zinc chloride. The first injection was made in November, 1891; a second in March, 1892. Five years later the breast was atrophied, presenting a vague nodule surrounded by adipose tissue. Nine years after the primary injection there was still no return of the tumor. During the past few months a recurrence has been noted; there is now present a scirrhus growth, adherent to the skin, showing a tendency to ulceration, and accompanied by enlarged axil-

lary nodes. It is believed that the growth of cancer may sometimes be arrested for a long period by sclerogenic treatment.

Wild¹⁸ has used Coley's fluid in 8 cases of inoperable cancer. All the patients were kept under observation until death, and in 6 cases the diagnosis was verified by post-mortem examination.

As to the effects of the treatment, pain was severe in 2 cases only. Local reaction, in the form of redness and swelling, occurred in 3 cases. General reaction, in the form of a rise of temperature with or without rigors, was absent in 2 cases, and marked in 3 cases. In 1 case 1 minim was followed by a temperature of 103° F., while in another case 16 minims failed to cause any marked rise. In several cases the effects appeared to be cumulative.

The appetite and nutrition of the patients were not impaired; they did not lose weight more rapidly than usual in similar cases. One case gained weight.

In one case there was no effect upon the disease, which steadily progressed, and ended fatally in about the usual time for similar cases in the hospital. In two the effects of the injections appeared to be unfavorable. It is not advisable to employ this method of treatment in feeble patients.

Two patients considered themselves benefited, and lived longer than expected.

From a study of the published cases and from personal experience, it is not believed that the results obtained so far justify the trial of Coley's method in any operable cases of malignant disease, whether carcinomatous or sarcom-

¹⁶ Atlanta Jour. Rec. of Med., iii. No. 2, 1901.

¹⁷ Jour. de Méd. de Paris, July 21, 1901.

¹⁸ Med. Chronicle, Mar., 1901.

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atous. A recourse to it seems to waste time, and probably renders subsequent operation fruitless.

In cases of inoperable carcinoma and epithelioma there is no evidence of any permanent benefit, and the treatment is by no means free from danger.

Wlaeff¹⁹ treats malignant tumors by the serum obtained by immunizing geese by the toxin isolated from human malignant tumors. Various observers are unanimous in declaring that the serum is innocuous and useful to the patient, ameliorating the general state of health, increasing weight, relieving pain, and checking the growth of the tumors. The best results are obtained in the early stages. Where the tumor does not disappear, but remains encapsulated, surgical treatment should be combined with the injections.

Roswell Park²⁰ remarks that cancer begins as a purely local infection, and kills by becoming generalized. Operation, if done before general infection has occurred, is extremely promising if done thoroughly. Carcinoma as a type of disease is in every instance an example of epithelial infection.

CONSTIPATION.

Treatment.—A. W. Perry²¹ states that, in undertaking the relief of a case of habitual constipation, one must first of all find out if there are any faults of expulsion. Then one should try to remove directly the principal cause. If this is not possible nor convenient, one may try to increase the action of other factors which, perhaps, are not deficient. If there is an atonic constipation due to sedentary habits, with diminution of the nervous intestinal irritability, if convenient, the habits are to be changed. The irritability may be stimulated by strychnine, or by rubbing the abdomen with

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ice a few minutes, or applying ether-spray each day, or rolling an iron (5-pound) ball over the course of the colon. Failing in this (even if the consistence of the faeces is normal), it may be made softer by more liquid before meals, or more bulky by increasing the cellulose of the food.

If there is no hydrochloric secretion of the stomach, the use of large doses of hydrochloric acid after meals will be likely to stimulate a deficient intestinal secretion.

Ipecac in small doses has been proved to excite bronchial secretion, and is used to some extent to increase the intestinal secretion.

Where the food is too absorbable and the weight of the faeces much diminished from the normal, 120 to 210 grammes (4 to 7 ounces), the diet should be changed to have more insoluble fiber in it. Almost any vegetable or fruit will do, or the bread should be made of the whole-grain flour. In diabetic constipation more water should be given. The constipation of young persons usually depends on hyperchlorhydria or other irritating acids in the stomach, which cause a reflex spasm of the pylorus and delay the passage of liquids out into the intestines.

Irritating purgatives—like aloes, colocynth, jalap, podophyllin—are also held back in the stomach, and do not act well, while the alkaline saline purgatives, taken hot and well diluted, neutralize the acid, exert a soothing action on the stomach, favor its discharge, and supply the requisite water to the bowels for proper stools. Experience shows the

¹⁹ Jour. de Méd. de Paris, vol. xiii, No. 17, 1901.

²⁰ Med. Record, May 18, 1901.

²¹ Pacific Med. Jour., Ang., 1901.

adaptation of the alkaline purgatives to the young.

A very little saline in 250 to 400 grammes of hot water, or even hot water alone, will often relieve this class of constipations. Sweet oil and much fatty matter in the food have a soothing effect on the stomach and cause normal passages.

An objection is frequently urged on prescribing a considerable addition of green vegetables to the diet, that they will disagree and cause flatulence. This is true for vegetables as ordinarily eaten, but if they are in a state of fine division, which should be the case with all dyspeptics, they will rarely disagree. The division is made by rubbing through a coarse sieve or by mashing in one of the now cheap and common family grinding machines.

Those vegetables which are naturally very fine (that is, in thin leaves) such as lettuce and spinach, are rarely found to disagree with dyspeptics. Middle-aged persons sometimes resist the dietetic and mechanical treatment for the cure of constipation, and need a chemical stimulus, such as is afforded by a dinner-pill of rhubarb or aloes, which they may take for years with benefit and without increase of dose.

Charles R. Sowder²² remarks that the causes and relief of chronic constipation will vary with the age of the child, but the first year is the critical period where is laid the foundation habits.

The promiscuous and continued use of drugs for constipation should be condemned. The cause of the constipation should be determined, and then relief should be sought by proper measures.

If constipation is due to too little fat, relief may be obtained by giving cream after each nursing, or, if cows' milk is used, by adding cream to each feeding.

If it can be obtained readily, a small amount of fresh unsalted butter, three or four times a day, will answer the purpose well. Fifteen to 20 drops of emulsion of codliver-oil, three times a day, will be of far more value than all the laxatives which may be given. Olive-oil administered with the milk in bottle-fed infants often acts well.

Where constipation is due to atony of the intestine, massage will aid much. It should be given for five or ten minutes, morning and evening. The hand should be anointed with oil and a circular motion employed, the purpose being not to make friction, but to move the skin and abdominal walls of the intestines.

Suppositories may be used to secure evacuation of the lower bowel; a cone of oiled paper or a suppository of soap is very popular. Soap is good, but should not be long continued, owing to its irritating properties. Glycerin suppositories are more objectionable than soap, as their continued use produces a catarrhal condition of the rectum.

An enema of sweet oil or, better still, an injection of a drachm of glycerin to half an ounce of water is the best means to secure a free evacuation.

The continued use of injections of whatever kind is not to be advised.

Of drugs that are used, calomel in dry, white stools with flatulence, cascara elixir or fluid extract, elixir rhubarb, phosphate of soda, and preparations of malt are all more or less beneficial for temporary use. Castor-oil should never be used in chronic constipation.

ECLAMPSIA.

Etiology. — Stroganoff²³ endeavors to prove that eclampsia is a general acute

²² Med. and Surg. Monitor, Aug. 15, 1901.

²³ Zeits. f. klin. Med., B. xxxix, p. 503, 1901.

infectious disease. The nephritis which frequently accompanies it is secondary. In support of this view the following statements are made: Eclampsia is a general disease, and affects different organs—the brain, lungs, liver, kidneys, spleen, heart, pancreas, and blood—in degrees of varying intensity. The symptoms of the short incubation stage are headache, dulling of the senses, affection of the sight, etc. The disease is very acute, and may be fatal in a few hours; it is accompanied by fever, which cannot be explained by the convulsions. Cases occur in series in the large lying-in establishments, and a house-to-house infection may be traced. The cause of the disease must be of high virulence, and only finds its most favorable ground for development in lying-in women and infants.

W. A. Newman Dorland²⁴ remarks that recently a strong reaction has set in against the theory that all cases of eclampsia are due to renal insufficiency indicated by albuminuria of greater or less intensity. The present tendency is to ascribe the convulsive seizures and the albuminuria to the presence in the blood of a certain toxin or toxins of unknown constitution and origin. The great constancy of hepatic lesions that have been observed in autopsies of women who have died from eclampsia, accompanied by urinary changes indicative of imperfect catabolism, seem to point to autointoxication being the cause of the condition, and the liver as the probable source of the poison. While no direct proof of this theory has been given, many arguments in its favor are furnished clinically, pathologically, and experimentally. The organism must constantly fight against the toxic materials contained in the food, and the foreign poisons originated in the economy,

and it does this by means of the metabolic organs whose function it is to arrest and transform the toxic principles, namely: intestines, spleen, lymphatic glands, suprarenal capsules, thyroid glands, and liver, and the eliminating organs (the intestines, skin, lungs, and kidneys). The liver fulfills a triple function, namely: it collects toxic substances, transforms toxic substances, and through the antiseptic properties of the bile it reduces intestinal fermentation.

Pregnancy, either by increasing the amount of toxic substance or by favoring organic insufficiency, predisposes to auto-intoxication. The toxicity of the urine is increased in pregnant women for several reasons. It may be that the excreting products usually contained in the menstrual flow are eliminated by the kidneys during pregnancy, the metabolites of both mother and fetus being discharged through this channel; and, owing to the hydræmia incident to pregnancy, the work of the heart and the lungs is increased. There is, in addition, constipation with intestinal fermentation, necessitating the excretion of the kidneys and of the morbid products from the bowel also, and thus increasing the toxicity of the urine. From the excess of work the kidneys are apt to succumb, and cease to eliminate the toxic principles, while the pressure of the gravid uterus upon the bladder and ureters tends to cause an associated uræmia and albuminuria.

The nature of the poison directly responsible for the eclamptic seizure has not yet been proved. Products of metabolism, both in the mother and fetus, are normally changed in the maternal liver into urea and bile salts, whereas in hepatic insufficiency these products ac-

²⁴ Amer. Jour. of Obstet., Sept., 1900.

cumulate in the blood. Acetone is found in the urine of eclamptic patients, and their breath smells of that substance. It may be concluded that when the foetus and mother send an excess of waste-products to the maternal liver, there occurs an acute degeneration and inflammation of the hepatic cells and retention of toxic materials. The relation of acetone to metabolism is so important that the urine of pregnant women should be systematically examined for it.

A lessened toxicity of the urine must mean an increased toxicity of the blood. The liability to eclampsia does not so much depend upon the amount of albumin in the urine as upon the daily amount of urine excreted and the relative proportion of solids contained in the total amount.

A. S. Zili²⁵ states that after a series of experiments the following conclusions were deduced: (1) the blood in eclampsia does not show any appreciable variation in its freezing-point from that of normal blood; (2) therefore in eclampsia there is no retention of urinary salts or of urea; (3) the normal value of the freezing-point of the blood in eclampsia shows that the permeability of the kidneys is not affected in proportion to the most uræmic processes; (4) we are therefore led to the assumption that the supposed toxic material responsible for eclampsia is to be found in a greater atom-complex than in a regressive albumin-metabolism, probably an intermediate product derived from albumin-molecules.

According to Beattie,²⁶ the etiology of puerperal eclampsia is still a mooted question. The bacteria which were supposed to be the germs causing eclampsia are found in all pregnant women. When the blood of the eclamptic patient is examined, micro-organisms are rarely

found, and from observations one can find no positive proof that any one germ has been isolated which will cause eclampsia. The universal opinion at present is that eclampsia is due to a profound toxæmia, and the origin of this toxæmia is still unknown.

H. O. Nicholson²⁷ states that the toxic theory of eclampsia is now the one generally held by most obstetricians, and in this connection the following points may be mentioned: 1. That in every case of pregnancy more or less toxæmia exists, and that the blood-intoxication becomes more profound toward the end of gestation. 2. That, although the eclamptic state is due to a toxæmia, the toxic agent which excites the convulsions is probably not always the same; there seems to be different types of the disease. 3. That the toxins may be produced in greater abundance in some cases (twin pregnancies) and that they are generally more virulent in primiparæ than in multiparæ. In the primipara mechanical pressure on the renal vessels may possibly come more into play, while in the multipara a certain degree of immunity against the toxin may have been acquired from previous pregnancies (Allbutt). 4. That in spite of very grave toxæmia no alarming symptoms will occur so long as elimination by the kidneys is sufficiently active. Of the nature of the toxins nothing is known, and there is no clear evidence to show where they are formed.

Lange noted that, out of 25 pregnancies in which the usual hypertrophy of the thyroid did not occur, albuminuria occurred in 20. Large doses of thyroidin were administered to pregnant women in whom the physiological en-

²⁵ Berliner klin. Wochen., Oct. 22, 1900.

²⁶ Jour. Amer. Med. Assoc., Aug. 24, 1901.

²⁷ Lancet, June 29, 1901.

largement of the gland had occurred and a marked diminution in the size of the gland resulted. One might therefore conclude that the normal hypertrophy of the thyroid gland in pregnancy is the result of a demand for extra secretion to meet the wants of increased metabolism. With a continuous supply of artificial secretion the gland was relieved of the additional strain and resumed its former size. Hallion observed similar effects.

Treatment.—The method of treatment adopted by Robert Jardine²⁸ is one which aims at clearing the system of deleterious substances through the natural channels.

If physicians were able to keep all pregnant women under observation and to treat all cases of albuminuria by milk diet, saline purges, and diuretics, eclampsia would be practically unknown.

When the fits have commenced, there is no time to spare. From 1 to 3 ounces of Epsom salts, given through a stomach-tube unless the patient is quite conscious, is the purgative now used.

To get a good action of the skin a hot pack or steam-bath is most valuable. Pilocarpine is too depressing, and, if there is oedema of the lungs, it may kill the patient. The normal saline solution has an effect in controlling the fits.

The infusions are given under the breast or into the abdominal wall. A medium-sized Potain trocar and cannula with three or four feet of tubing and a funnel is the apparatus personally used. The apparatus should be sterilized and the skin thoroughly cleansed. From 1 to 3 pints can be run in under the breast in a few minutes. The puncture should be covered with strapping. If necessary, the infusion may be repeated several times. As soon as the patient can swallow, milk should be freely administered.

The uterus should be let alone unless

the fits continue in rapid succession. If the cervix is at all rigid, incision is preferable to forced dilatation. If the case is well on in labor, delivery should be effected at once. In all operative interference the patient should be kept deeply under chloroform.

According to J. P. Simpson,²⁹ no special line of treatment is suitable for all cases, inasmuch as many cases of eclampsia will recover speedily with a simple diuretic and diaphoretic mixture and application of heat to the body by means of the hot-air or vapor-bath, or by means of hot-water bags; but there are other cases in which this is quite inadequate to produce the desired effect. Morphine has been much used, and has produced good results with different authorities. But even with this remedy there are cases where fatal results are likely to follow: *e.g.*, cases of nephritis with renal inadequacy.

Pilocarpine is a powerful remedy, but it is distrusted by some. In doses of $\frac{1}{5}$ grain hypodermically it produces diaphoresis in less than twenty minutes. Treatment by infusion or transfusion of saline solution, either subcutaneously or intravenously, has been much practiced and advocated. Intravenous transfusion is considered bad treatment even in cases of severe post-partum hemorrhage, as saline solutions can be introduced into the circulation with safety by less dangerous methods: *e.g.*, per rectum and subcutaneously. In all cases of eclampsia the less heroic methods are first advocated, and, if no good result be obtained, then more powerful remedies should be resorted to, preferably pilocarpine in suitable cases.

If eclampsia appears in the first

²⁸ *Lancet*, June 15, 1901.

²⁹ *Ibid.*, June 29, 1901.

months of pregnancy, forcible measures in emptying the uterus should be avoided, even under chloroform. The bougie is more likely to act beneficially than forcible emptying of the uterus. It should be kept *in situ* so long as to produce powerful and regular contractions, and then withdrawn, to be reinserted if the pains lag. Venesection is a valuable form of treatment if the patient is plethoric, but to bleed indiscriminately is bad treatment.

Killebrew³⁰ says that all patients except those who are extremely anæmic should be bled. The withdrawal of a portion of the blood from almost any of these patients will act beneficially if some other circulating fluid is introduced to take the place of the blood withdrawn; undoubtedly it would be better to bleed only those patients who are very plethoric. In the very anæmic it is better to introduce the normal salt solution without bleeding. Intravenous injection is preferable to hypodermoclysis.

The uterus should be emptied immediately. If the cervix is not fully dilated, or nearly so, it must be manually dilated as quickly as possible. If this is impossible on account of rigidity, recourse must be had to incisions, as advised by Dührssen.

After these measures have been taken the colon should be thoroughly irrigated. If the convulsions recur and are mild, they should be controlled with chloral given in an enema. Should they again become severe another infusion of normal salt solution should be given. During convalescence the patient should be confined to bed and the bowels and other excretory organs kept active. The diet should be restricted to liquids for a week and then gradually increased. A high saline enema should be given twice

daily. All excitement, worry, and depressing influences are to be avoided. Callers should not be allowed, and the nurse should make special efforts to keep the patient in a buoyant frame of mind.

G. Murray Anderson³¹ advised accelerated delivery as a means of ending the fits. Herman, however, stigmatizes the maxim, "deliver as quickly as possible" as "pernicious." In Schaute's statistics, 185 cases, the fits ceased on delivery in 33.5 per cent. In Schreeber's 105 cases they ceased on delivery in 62 per cent. These facts are used by Herman to show that "the disease follows the one course about as often as the other."

Of morphine, chloral, and chloroform, the greatest favorite seems to be morphine. Veit treated 60 cases, with 2 deaths, with morphine. The great objection to statistics of narcotic drugs is that they would probably never be used in comatose cases. Stimulating the bowel, kidney, skin, etc., is rational if all these organs are concerned in eliminating the poison.

If saline injections are good, surely Dr. Jardine's method of making it diuretic with potassium bicarbonate should be better.

W. B. Hallowes³² has had 4 cases of eclampsia in somewhat over 2000 labors, all of which terminated favorably under rectal injections of chloral hydrate. All 4 cases were primiparae, 2 commenced ante-partum, and 2 post-partum. In all 4 cases the convulsions were severe and of fairly frequent occurrence. Blood-letting (20 ounces) was tried in 1 case (post-partum) after consultation,

³⁰ Med. News, Nov. 3, 1900.

³¹ Australasian Med. Gaz., July 20, 1901.

³² Lancet, July 13, 1901.

but without effect. On the continuance of the convulsions 60 grains of chloral hydrate in 1 ounce of water were injected per rectum; this was repeated three times during the next twelve hours, on the slightest reappearance of "twitching." In the other post-partum case the same treatment was adopted. Chloroform was administered in 1 case, ante-partum, pending the dilatation of the os. Digital dilatation of the os was employed with care, with podalic version, and delivery was completed as soon as possible. Convulsions recurred in about an hour, and immediately 60 grains of chloral were administered as before described. It was necessary to repeat the chloral three times at intervals of from three to four hours. Subsequently convalescence was uninterrupted. In the other ante-partum case the patient suffered from severe bronchial catarrh, so that it was impossible to administer chloroform; but the labor was fairly well advanced, and two injections, at an interval of about one and a quarter hours, sufficed to stave off further attacks before delivering with the forceps. Subsequently three injections were required and immediately given on the first sign of recurrence, at intervals gradually lengthening to three, four, and five hours.

R. P. Ranken Lyle³³ remarks that there are three great principles in the treatment of this condition:—

1. The purifying of the blood.
2. To control the convulsions.
3. The emptying of the uterus.

Diuretic infusion is a valuable addition to the usual treatment adopted for purifying the blood (purgatives, enemata, diaphoretics, vapor-bath, diuretics, etc.), but it has no immediate effect in controlling the convulsions.

In order to control the convulsions in

eclampsia, it is necessary to allay the irritability of the cerebro-spinal system. Chloroform is undoubtedly bad, as its action is very temporary, and very depressing to the patient; the action of chloral and veratrum viride is more lasting, but they are both cardiac depressants; while morphine, judiciously given, is quite free from any disadvantage.

In personal experience at the Rotunda Hospital, of 8 consecutive cases of puerperal eclampsia, all of them treated by morphine, only 1 died. In this case only did the morphine appear to have no effect, the convulsions continuing frequent and severe, and the temperature rapidly rising to 106.6° F. The liver was very large and extensively diseased. As soon as the patient enters the second stage of labor she should be delivered by the forceps, but any mechanical interference (induction of premature labor, mechanical dilatation of the cervix, version, or *accouchement forcé*) during the first stage of labor is extremely unsuccessful treatment.

G. E. Fitzgerald³⁴ notes 5 cases of eclampsia that came under his observation in private practice. In the first 2 cases chloroform was given for the convulsions and the child was delivered forcibly; both women died. In the other 3 cases, which were just as severe, the convulsions being very violent and the urine practically solid with albumin, forcible delivery was not practiced; the treatment was by means of hypodermic injections of morphine and atropine, with solution of ammonium acetate and cathartics. All 3 cases recovered.

³³ Brit. Med. Jour., Jan. 19, 1901.

³⁴ *Ibid.*, Nov. 24, 1900.

H. O. Nicholson³⁵ says, as regards treatment in the early stages, when there are increased tension of pulse and diminution of urine thyroid extract should be given twice or thrice daily, and proteid foods should be entirely forbidden at first. Iodide of potassium in small doses has been regarded as a specific for puerperal albuminuria; the iodine has been proved to be picked out by the thyroid gland, and may be elaborated into the active iodothylin. It has been suggested to give infusions with iodide of potassium instead of ordinary saline infusions in cases of eclampsia. If convulsions have already occurred then the use of thyroidin by the mouth will not be rapid enough. Liquor thyroidii, or, better still, fresh thyroid juice, in from 10 to 15 minims, should be given by hypodermic injection and repeated every hour or two if not followed by signs of improvement. For the immediate treatment of the convulsion morphine is the best remedy. It inhibits the various processes of metabolism, and this gives opportunity to the thyroid gland to recover itself. The dose should be large: not less than $\frac{1}{2}$ grain for the first injection.

MENINGITIS.

Symptoms. — Thursfield³⁶ notes 17 cases of posterior basic meningitis. In 12 the diagnosis was confirmed by autopsy. The bacteriological examination in 9 instances showed that in 8 of these an intracellular diplococcus was present in the exudate. Seven of the cases occurred in females, 10 in males. The average age was 9 months, excluding 4 cases which occurred in their fourth year and over. The onset of the disease was marked by retraction of the head in 3 cases, vomiting in 9, convulsions in 4, and bulging of the fontanelles

in 6 cases. Sooner or later retraction of the head appeared in all of the cases. Of the ocular symptoms, there were frequently noted early strabismus and nystagmus. In 13 out of the 17 cases changes in the fundus were observed, and amaurosis was seen in 7 cases. Retraction of the upper lid, which occurred in 7 instances, is regarded as the most constant and characteristic ocular symptom of posterior basic meningitis. Vomiting and rapid progressive emaciation were present in all of the cases. A clinical feature, sometimes present in posterior meningitis, is hydrocephalus, and involvement of the joints. Leucocytosis was found in the more acute form, while in the chronic variety the number of leucocytes was normal.

Diagnosis. — Concette³⁷ has made a study of 90 cases of non-tuberculous meningitis and upon 13 cases of poliomyelitis. Autopsies were obtained in 22 cases, and 50 other cases of various conditions — such as hydrocephalus, tuberculous meningitis, cerebral and rachidian tumors, tetany, etc.—were studied by way of comparison. At least 450 lumbar punctures were made. The conclusions are as follow:—

1. A series of 23 cases of acute meningitis were studied. These developed most often in the course of a gastrointestinal infection or of a pneumonia or other acute infectious disease; more rarely in the midst of perfect health. They are characterized by an abundant exudation of cerebro-spinal fluid of limpid clearness and increased specific gravity, which is richer in albumin than normal, and sometimes shows the for-

³⁵ *Lancet*, June 29, 1901.

³⁶ *Ibid.*, Feb. 16, 1901.

³⁷ *Revue Mensuelle des Mal. de l'Enfance*, Aug., Sept., and Nov., 1900.

mation of a fibrinous reticulum (the phlogistic exudate), but contains no trace of micro-organisms. The exciting cause is attributed to toxic elements. The term acute serous meningitis should be restricted to cases of this character.

2. In another series of 21 cases the meningitis most frequently developed primarily, or, more rarely, in the course of another disease (pneumonia, intestinal infections, or typhoid), and was caused by various known organisms. The cerebro-spinal fluid may be perfectly limpid, clouded, or even purulent, and contains a much higher proportion of albumin than normal: 1 to 2 per cent. At autopsy the meninges are scarcely affected, or may show varying degrees of fibrino-purulent exudate, which in the extremest cases may be very extensive and thick. Limpidity of the liquid exudate in these cases does not justify the term acute serous meningitis, which should be reserved for the purely toxic cases of the first group. The most frequently encountered micro-organisms are the pneumococcus and the diplococcus intracellularis (meningococcus), but in rarer cases have been found the bacterium coli, the Eberth bacillus, streptococci, staphylococci, the bacillus pyocyaneus, the bacterium lactis aërogenes, or others. With the exception of the streptococcic or staphylococcic cases, in most of these meningitides the cerebro-spinal fluid is limpid. The pneumococcus determines the most serious and rapid cases, especially if it coincides with pneumonia (metapneumonic meningitis).

3. Meningitides produced by the meningococcus are almost always primitive (perhaps of nasal origin), have a much longer course, are almost always of intermittent type, and have a tendency to recovery in the majority of cases.

4. Acute meningitides, whatever their nature, which do not destroy rapidly (excepting the exceedingly benign forms), tend to a prolonged course lasting several months or even as long as a year, especially those due to the meningococcus, and may terminate in death in a profound state of atrophy, or in recovery which in most cases is incomplete, leaving, as a result, hydrocephalus, amaurosis, deafness, or various palsies.

5. All the causes above considered, whether bacterial or toxic, may act in the same manner upon the nervous tissue itself, or upon it at the same time as upon the meninges, and produce polioencephalites, poliomyelites, or meningomyelites, which should be considered as processes due to the same pathogenic cause, which are distinct only in special cases because of the quality of the causal element and of the localization.

6. Lumbar puncture constitutes an excellent means of diagnosis and sometimes of prognosis. It is also a powerful therapeutic agent if practiced at an early period of the disease and continued with more or less frequency according to the gravity of the case.

7. On the contrary, in other forms—*e.g.*, tuberculous meningitis—puncture is useless either for diagnosis or as a therapeutic measure. The same may be said for its use in chronic congenital hydrocephalus and cerebral tumors.

Complications.—Vinokuroff³⁸ has observed two cases of complete rigidity of the spine resulting from spinal meningitis which developed in the course of convalescence from typhoid fever. The following conclusions were reached:

³⁸ Vratsh. Apr. 21, 1901.

1. "Stiffness of the spine" is one of the conditions associated with cerebro-spinal meningitis. 2. The location and extension of this condition depends on the location and extension of the inflammation of the spinal meninges. The assertion of Bechteroff, that the morbid changes take place at first in the cervical and dorsal portions of the spinal column, is not well founded, for in the above cases the affection commenced from below. 3. The paralytic state and atrophy of the muscles occur only when the underlying meningitis passes into the second, or paralytic, stage. 4. Kyphosis also appears only in the paralytic stage, and, seen in the second case, may be absent altogether, although the disease lasted for four years. 5. Similarly, anæsthesia may be either slight or altogether absent. 6. The opinion of Bechteroff, that the stiffness of the spine is simply the result of the kyphosis, is controverted by the observation that kyphosis may be absent. The stiffness appears in the first stage of irritation, while kyphosis is of myopathic origin, and can only occur during the paralytic stage. 7. The causes of "stiffness" are the same which produce the meningitis, viz.: cold, trauma, infectious diseases, syphilis, alcoholism, and diseases of the lungs, heart, and liver. It may also be the result of rheumatism. 8. It is improper to include all cases of immobility of the spine in the group described by Bechteroff. The distinction between the various forms should rest on the pathologico-anatomical changes, and not on the symptoms.

Treatment.—H. Koplik,³⁹ in his treatment of cerebro-spinal meningitis in several cases by repeated lumbar puncture, used the Quincke method, and from 3 to 50 cubic centimeters of the fluid

were withdrawn. The punctures were made on 5th, 6th, 8th, 9th, 10th, 13th, 16th, 19th, 24th, 28th, 36th, and 37th days of the disease. The fluid withdrawn on the 5th day was turbid; on the 6th, cloudy; on the 8th, turbid; 10th, turbid and flaky; 13th, turbid, thick, and purulent, and continued to be turbid up to the 37th day. Micro-organisms were found in turbid, opalescent, and less turbid fluids. In opalescent or clear fluids they were found by staining, and sometimes were absent by culture. Such symptoms as persistent headache, somnolence, coma, delirium, and convulsions due to an accumulation of fluid in and about the brain and cord, and to a certain amount of toxæmia resulting from the absorption of inflammatory products, were relieved for a time, at least, by the puncture. The puncture was carried out with antiseptic precaution, most of the patients receiving three punctures, although in one more were given. The operation was only performed when symptoms of pressure or accumulation of exudate appeared, and the procedure was only repeated if there was an exacerbation of the symptoms. There seemed to be no marked effect on the pulse and respiration, even if a considerable amount of fluid was withdrawn.

WHOOPING-COUGH.

Diagnosis.—According to F. F. Cai-ger,⁴⁰ whooping-cough at the commencement of the attack is very likely to be mistaken for an ordinary bronchial cold, and in the absence of the characteristic whoop its recognition may be consider-

³⁹ Med. News, Mar. 23, 1901.

⁴⁰ Pediatrics, Sept. 15, 1901.

ably delayed. In some undoubted attacks the whoop is absent throughout. Points which serve to indicate the specific character of the cough in the absence of the whoop are the relative frequency with which the cough occurs at night, the sudden onset, the paroxysmal quality, and peculiarly energetic character. The points of diagnostic value are the puffiness around the eyes, subconjunctival edema, excessive viscosity of the sputum, and the existence of fine, sticky râles over the chest. Psychological disturbances are also common. The child is unduly nervous, and is prone to wet his bed.

Koplik—confirming the observation of Afanassief, Szemetschenko, and Zuch—describes a small bacillus in the sputum during the early stage. He isolated it from the grayish mucous pellets of the sputum in thirteen out of sixteen consecutive cases. It is very minute, is difficult to cultivate, but may be grown on coagulated hydrocele-fluid.

Treatment.—H. H. Haralson⁴¹ says that heroin and belladonna may be used advantageously in whooping-cough. The administration of the remedy should be begun early in the attack and continued through the stages of catarrh and spasm, or the first and second stages. The last stage, or the stage of resolution, requires very little treatment other than moderate stimulation, preferably of good whisky, tonics, and nourishment, and wholesome hygienic surroundings.

To a child—say, 2 years old—may be given 2 drops of tincture of belladonna three or four times daily and $\frac{1}{150}$ to $\frac{1}{100}$ grain of heroin every four or five hours, the heroin to be increased if borne well by the patient.

The two remedies may be combined, as in the following prescription:—

R Heroin hydrochloride, $\frac{1}{4}$ to $\frac{1}{2}$ grain.

Tincture of belladonna, 64 minims.

Whisky, 1 ounce.

Simple syrup, q. s. ad 4 ounces.

M. Sig.: Teaspoonful every five or six hours.

Other remedies may be indicated during an attack, but they should not be allowed to interfere with the above, which should be persisted in from the beginning of the stage of catarrh to conclusion of stage of spasm.

T. J. Mays,⁴² in conformity with personal belief that disorders of the pneumogastric nerves are not only responsible for all the various forms of spasmodic cough, but also play an important part in the evolution of many diseases of the lungs, applies counter-irritants over these nerves in the region of the neck in this disease, with the most signal benefit. The practical way of applying this remedy is as follows: Trace the pulsating carotid artery from behind the angle of the lower jaw to the clavicle on both sides of the neck. This will be a landmark for finding the pneumogastric nerves, which lie in close proximity and slightly behind the carotids. Gentle massage and kneading of this region of the neck, every hour or two, yield beneficial results in many cases of this disease. The application of a strip of mustard plaster, about two inches wide, from the angle of the lower jaw to the clavicles on each side of the neck, two or three times a day, until the full effects of the mustard are evident, is almost sure to cause amelioration of the spasmodic cough. Equal parts of gum camphor, chloral hydrate,

⁴¹ Miss. Med. Record, Aug., 1901.

⁴² N. Y. Med. Jour., Sept. 7, 1901.

and menthol, applied over this region, are also very useful. Painting the same area with tincture of iodine, twice a day, until irritation of the skin is produced, is a beneficial procedure. Finally, in very stubborn cases the hypodermic injection of silver nitrate over the vagi must be resorted to in accordance with the following plan: One lifts the skin over the vagus between the thumb and the forefinger of the left hand, introduces the hypodermic needle just under the elevated skin, and injects 5 minims of a 2 $\frac{1}{2}$ -per-cent. solution of cocaine hydrochloride. The syringe is now de-

tached from the needle and the latter is allowed to remain in the puncture. The syringe is washed out with water, a 2 $\frac{1}{2}$ -per-cent. solution of silver nitrate is drawn into the syringe, the latter is attached to the needle, and from 3 to 6 minims of the silver solution are thrown in.

Under the influence of this line of medication the child becomes more comfortable, the paroxysms become less frequent, the severity of the cough diminishes, and altogether the affection assumes a different character, often in the space of a day or two.

Cyclopædia of Current Literature.

ALCOHOL IN ITS MEDICAL AND SCIENTIFIC ASPECTS.

Personal opinion of alcohol is that it is a narcotic poison, of which the pernicious effects are to be seen at all times and on every hand. It is a drug which, under certain conditions, may be valuable, but it is a dangerous medication in the hands of anyone but a physician; and even in the hands of the physician or surgeon its exhibition is attended with dangers that attach to the prescription of no other substance in the pharmacopœia; these dangers are not moral only, but physical dangers, resulting from the action of alcohol on the tissues generally, but especially on those of the nerve-centers. Its food-value under ordinary conditions is practically *nil*, and, put in the most advantageous light, can only be temporary, and then of an extraordinarily slight and wasteful character. G. Sims Woodhead (Edinburgh Med. Jour., Aug., 1901).

ANEURISM: TREATMENT BY INTRODUCTION OF WIRE AND ELECTRICITY.

The size of the wire should be thoroughly graduated to the caliber of the needle, which latter should be tested to ascertain the smoothness of its bore, as it is essential that the wire should slip easily through it. No practical difference between silver, gold, and platinum wire is personally seen. Size 27 to 30 is probably about the best diameter. Finney uses silver alloyed with copper: 75 copper to 1000. This, when drawn down from No. 8 to No. 27, makes a close coil, is very pliable, and corrodes moderately with galvanism. Stewart found that iron wire was undesirable, for the reason that the passage of the current rapidly decomposed it and liberated iron chloride and oxide in such quantities as to be dangerous if washed into the vessels, with a probability of causing thrombi. Steel wire coils better than silver, but is too stiff, and may injure the sac.

The amount of wire should be regulated by the size of the aneurism, its object being to form a skeleton for a clot; the amount should be so regulated that it will fully reach all portions of the sac, for which reason it should be previously wound so as to coil and snarl in different directions. The wire for a large aneurism can be wound upon a sterilized rolled towel, so as to make large spirals in the sac; for a smaller sac, it should be wound upon a glass or spool; in either case it should be carefully arranged and prepared so that there will be no delay or kinking during the process of feeding the wire in through the cannula. If the wire kinks, other needles may be inserted at different points of the aneurism, all the wires being attached to the positive current. The arrangement of the coils can be well observed by feeding the wire into a glass flask. If the wire is properly wound before operation, it is very improbable that the initial point will strike the opposite wall. If too large a quantity is used, pressure upon the sac from within might cause ulceration and rupture, and might also interfere with contraction of the sac; moreover, if coils lie against the wall and the current is too strong, the sac may be burned. Moore used as high as 108 feet, and Abbe 150; Roosevelt introduced 225 feet of steel piano-wire, applying a galvanic current of 25 milliamperes for thirty minutes. Probably 5 to 20 feet would be the proper amount.

It is very important that the tissues be protected from the galvanism. For insulation of the needle, best French lacquer or varnish, set by heat, seems best. Lacquer will not stand boiling nor soaking in a carbolic solution, but it can be thoroughly sterilized by dry heat carried up to 300 degrees; then wrapped in

a sterile towel. A long veterinary hypodermic is better than a trocar and a cannula, even of same size, since the wire can be inserted half-way into the needle before the puncture is made, and assists in controlling primary hæmorrhage when the needle is inserted.

There is always risk that the wire may enter the aorta, as has happened in several cases, and minute or larger clots may be washed off and form emboli.

Ten cases then have been positively benefited, one is uncertain, and, while the remainder died at various periods within a year, yet nearly all of those that survived the immediate effects of the operation were rendered decidedly more comfortable.

This method, therefore, of dealing with a most serious condition seems to offer a more reasonable hope of success than any other plan at present discovered. De Forest Willard (Univ. of Penna. Med. Bull., Sept., 1901).

ANOPHELES, THE INFLUENCE OF COLOR UPON.

Experiments were made in a large gauze tent which had been erected within a disused photographic establishment, the one end of the tent ending against large windows, into which the sunlight poured on bright days. Large stone basins were placed on the floor for the *Anopheles* to breed in, the stock being renewed from time to time.

It was noticed at the beginning that when one entered the tent in dark-gray clothes the imagos frequently flew up and settled on the dark cloth, but that they never did this when the person entering the tent was clothed in white flannels. To test the influence of color, a number of pasteboard boxes were taken which measured 20 centimeters by 16 centimeters and had a depth

of 10 centimeters. The boxes were lined with cloth, having a slightly-roughened surface, to which the insects could comfortably cling. All of the fabrics had a dull surface, and each box was lined with a cloth of different color. The boxes were placed in rows upon the floor and upon each other in tiers, the order being changed each day after the observations had been made. The interior of the boxes was moderately illuminated by light reflected from the surface of the white tent. On 17 days during a month, be- in the boxes were counted. Counts were actually made on 17 sunny and cloudy number of flies which had accumulated ginning with the middle of June, the days, and with the following result:—

Color of Box.	Number of <i>Anopheles maculipennis</i> Counted in Each Box During Seventeen Days.
Navy blue	108
Dark red	90
Brown (reddish)	81
Scarlet	59
Black	49
Slate gray	31
Dark green (olive)	24
Violet	18
Leaf-green	17
Blue	14
Pearl gray	9
Pale green	4
Light blue (forget-me-not) ..	3
Ocher	2
White	2
Orange	1
Yellow	0

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Dark blue was most attractive, the other colors being less and less attractive in the order of numbers given. A marked fall in the number of insects resting in the boxes begins with the "blue" box; the color in this case was a rich, full blue. Pale green, light blue, ocher, orange, and yellow, especially the

last two colors, seemed to repel the insects.

It is true that the *Anopheles* bite more frequently during twilight and at night, but the choice of clothing having a repellent color should afford a measure of protection against the insects which may bite during the day-time. In any case, the number of insects congregating in dwellings might very well be lessened by the choice of colors of a suitable character applied to the walls. Some sort of trap might readily be devised, lined with a suitable color, such as dark blue, within which the insects could congregate and easily be destroyed in considerable numbers. G. H. F. Nuttall (Brit. Med. Jour., Sept. 14, 1901).

CHLORALISM.

Chloralism is a form of drug-addiction which appears to be more common among women. As in all other forms of drug-addiction, some previous neurosis will be found to precede the first use of chloral. The sleep which it produces is so profound and followed by no unpleasant sensations that it is repeated as often as occasion calls for it.

Chloral can be taken secretly for a long time without any suspicion of its use. After a time the effect of its use appears in disordered digestion, the irregular heart's action, and the increase of nervousness and muscular unsteadiness. In persons past middle life a form of cardiac asthma with a tendency to delirium appears. These and many other obscure symptoms finally merge into delirium and death. Some observers have noticed that chloral-takers have peculiar blueness of the extremities, with venous congestion; also marked listlessness and lack of energy as prominent symptoms of this addic-

tion. Chloralism is confined largely to the more prosperous classes of society. This drug can be disguised in many ways and used as a fascinating sleep-producer. The amount varies from 20 to 2000 grains a day. Often considerable time will elapse before toxic symptoms appear; then, suddenly, extreme prostration, with delirium, comes on, ending fatally. Sudden palsies, with vasomotor disturbances, heart-failure, and low stages of delirium, should suggest chloralism, particularly if alcohol, opium, cocaine, and chloroform be excluded. The statement of the patient concerning his condition is of no value. Where the history indicated extreme neuralgia and insomnia and a sudden passing away of these conditions, the assumption that chloral is used is possible. When it is established that chloral-addiction is present, the patient should be isolated at once and placed under positive restraint, and the drug withdrawn. Alcohol, opium, chloroform, ether, and cocaine are all contra-indicated as substitutes. Vegetable narcotics, such as hyoseyamus, valerian, lupulin, bull-nettle, and others of this class may be given as substitutes, and withdrawn at the earliest moment. Then comes the usual tonic treatment of *nux vomica*, strychnine, and arsenic. Cinchona and iron are also excellent drugs. The insomnia and neuralgia with deranged nutrition which follow the withdrawal should be treated with baths, foods, and careful hygienic management of all the functional activities of the body. Many secret remedies for neurotic troubles contain chloral, and decided symptoms of chloralism often appear. Chloralism has been mistaken for general paralysis, neurasthenia, and hyperemia, as well as several affections of the cord. Many opium and alcohol

cases are found to be complicated with chloral-addiction, and their recovery is more difficult. T. D. Crothers (*Med. Standard*, Aug., 1901).

DIPHTHERIA.

Diagnosis.—In the diagnosis of diphtheria the simple microscopical method of examining the exudate is a great deal better than any clinical method. All that is needed is a good microscope, with an Abbé condenser and oil-immersion lens. Also a few slides are required, and some Löffler alkaline blue. If one meets with a suspicious case, all that is necessary is to ask for a whalebone or stout stick, and wrap a bit of absorbent cotton on the end. This swab should be rubbed on the exudate very firmly; then it can be put in an envelope or other simple container, and examined in the office. To do this, one should moisten a clean glass slide with a drop of water, and rub the swab around in it for a minute. Then the swab should be burned and the preparation dried. When it is thoroughly dry, it is passed through a flame three times at such a rate that the exudate is baked and will not wash off; or, on the other hand, it should not be heated so that the preparation is distorted and scorched. After heating, one should run on the slide a drop or two of Löffler's blue, sufficient to cover the dried exudate, then wash off the stain, dry thoroughly with blotting-paper, and drop on a little cedar-oil and examine. The whole process takes about a minute or two.

If the case is diphtheria, the first things that will attract the eye are masses of fibrin stained deep blue. These masses are stringy in texture. In these masses of fibrin and outside peculiar bacilli may be seen. They are always more or less curved. They are

never of perfectly even width. They are often clubbed at one or both ends, or they may taper at one or both ends. These organisms never take the stain evenly; the substance of the bacilli appears much denser in places, so that the organism appears to have bands or stripes. Bacilli often appear broken in the middle, or there seems to be an achromatic juncture.

But what is far more characteristic is the presence of little black or bluish-black points very often situated at one or both poles of the bacillus, with occasionally a little point in the middle. If these point-bearing bacilli are found in the fibrin, one can be very certain that the case is diphtheria. There are many other organisms found in diphtheritic membrane by this method, but, if they contain chromatin granules and are curved and irregular in outline, they are diphtheria bacilli. If the case is tonsillitis, by the same method single round cocci or strepto- or diplo- cocci are to be found, but no chromatin point-bearing little rods will be seen.

A diagnosis of diphtheria should not be made unless these chromatin points are found. The preparation should be properly heated, and it is most important that the stain be good. A poor stain will not differentiate the chromatin points. Chromatin points appear in other organisms, as has been seen in long bacilli grown on potato and found in water, but the organisms were three or four times longer than the diphtheria bacillus; they were straight and of even width, except where the chromatin points bulged through the continuity, so that the organism resembled a jointed bamboo cane. It is said that a bacillus which is pathogenic for mice also exhibits chromatin spots. But it is rare to find such organisms in the

throat, and much rarer to find them in pseudomembrane. R. L. Pittfield (Univ. of Penna. Med. Bull., Sept., 1901).

ETHER-NARCOSIS.

Twenty drops of oleum pini punili-
onis added to 200 grammes of ether, just before administering the latter, prevents the secretion of mucus. This gives but a slight piny odor to the ether, and makes the latter less objectionable to the patient. This mixture has been used in about five hundred cases, with great success. Even when bronchitis, phthisis, empyema, or senile emphysema existed, these conditions did not grow worse. Ernst Becker (Centralb. f. Chir., June 1, 1901).

EUSTACHIAN TUBE, TREATMENT OF.

A year's experience in the treatment of the Eustachian tube by means of the electro-bougie warrants the following conclusions:—

1. The electro-bougie has a place in our aural therapy, though a less important one than was at first supposed.
2. It should be used after, and not before, other methods of treatment.
3. It will be most liable to fail if any associated internal-ear disease is present.
4. Its results are not always permanent—the stricture may re-form; one may hope rather for a diminution than a disappearance of the tinnitus. Two cases totally relieved out of twenty-five. Two cases partially relieved.
5. Its use is not without danger, and a proper knowledge of the anatomy of the parts and of the technique is essential.
6. It is a question whether the process is a true electrolytic one, or if in many instances the obstruction is a true fibrous stricture. T. J. Harris (N. Y. Med. Jour., Aug. 3, 1901).

GALL-STONES, THE FREQUENCY OF, IN THE UNITED STATES.

Pending the study of other series of cases from various parts of the United States, one may draw the following conclusions:—

Nationality: On the basis of the analysis of the 1655 autopsies from the Johns Hopkins Pathological Department, as compared with 1150 (?) cases as given by Schröder, of Strassburg, gall-stones are less frequent in the United States than in Germany, the United States showing a frequency of 6.94 per cent. and Germany of 12 per cent.

Age: The frequency of gall-stones in a given number of cases will increase with the age of the patients examined. The American cases tend to confirm the statements of previous observers: that gall-stones are rare before the thirtieth year and more frequent after that age.

Color: Gall-stones are more frequent in the white man than in the black race, the American cases showing a frequency of 7.85 per cent. in the whites and 5.51 per cent. in the negro.

Sex: Women are more liable to have gall-stones than are men, the American cases showing the frequency in 618 women to be 9.37 per cent., and in 1037 men to be 5.94 per cent. The American women have gall-stones only about half as frequently as the German women. In the United States only about 1 woman in every 10 has biliary calculi, while in Germany, according to Naunyn, gall-stones are found in 20.6 per cent. or in about 1 woman in every 5. C. D. Mosher (Johns Hopkins Hosp. Bull., Aug., 1901).

HÆMORRHAGE, POST-PARTUM.

Treatment.—The practitioner's satchel, if properly filled, will contain a clean Kelly pad, a package each of

plain and iodoform gauze, one of prepared wool and cotton, a two-ounce bottle of creolin, a vial of permanganate of potash, a speculum, a curette, an instrument for packing the uterus, a fountain-syringe, and a clean common household syringe, to which is, or may easily be, attached a large, hollow needle. This syringe and needle should be kept in every physician's satchel for the sole purpose of injecting normal salt solution. It is to be preferred to a fountain-syringe, for with it more force can be used in injecting the solution into the cellular tissue. The doctor must have about his person a good working hypodermic syringe, with tablets of morphine, atropine, digitalis, etc., and some aseptic ergotine. The large, open-mouthed uterine veins can, in an incredibly short time, exsanguinate a woman, and in order to close them the womb must be contracted. It cannot do this perfectly if there are remaining portions of placenta or membranes, or if a blood-clot forms in the cervix. Hence, with an aseptic hand one should sweep around the interior of the womb and remove any *débris* that is found, and while at this the nozzle of the fountain-syringe, which has previously been filled with sterile hot water, is to be introduced, and the uterine cavity is to be copiously irrigated. Ergotine and other agents should be given hypodermically, nothing being given by the mouth. The curette may sometimes be required, but rarely, and should be used with great caution. Tamponing is not safe, the womb being so easily dilated that the bleeding would still continue. The use of salt solution is imperative in exhaustion from hemorrhage. The position of the patient is also important, the head being lowered and the feet raised. Drugs are of but little use, except such

as are known to stimulate nerve-force and uterine action, and support the heart, and they should all be administered hypodermically.

The physician should never leave the bedside of a patient who has had a serious post-partum hæmorrhage until he is quite sure it is under perfect control, and the patient has safely reacted, and the after-treatment and care of such patients is of the utmost importance to prevent sepsis, metritis, and subinvolution. I. A. McSwain (Memphis Med. Monthly, Aug., 1901).

HARELIP.

The best age for the operation can never be fixed arbitrarily. The only point that deserves consideration is the strength of the patient. Some patients are robust enough to undergo the operation within a few weeks after birth, while others are not able to withstand the shock of the operation at the end of three or even twelve months.

When an operation is performed before the teeth have made their appearance, the mouth of the patient can usually be made aseptic without much difficulty. All that is necessary under these circumstances is to be careful that the patient is fed on the mother's milk entirely before the operation, or, if artificial food is used, that it should be sterilized before being used. It is better to have as long an interval as possible between the last suckling or feeding and the operation.

When operating on cases that have teeth, the greatest care should be taken to see that the teeth are sound. The offending teeth must be extracted or filled as seems best to the dentist, for he must be called in as an ally. If an operation is performed and the teeth

are carious, great risk of infecting the wound will be run.

In operating on adults the same precautions ought to be taken that are usually in other operations.

The anaesthetist must sterilize himself as carefully as the operator, because he has frequently to act as an assistant. Chloroform is the anaesthetic of choice.

During the first twenty-four hours after the operation young babies are very apt to suffer from high fever. Cold sponging will reduce it rapidly, and an evacuant enema will empty the bowels and remove the cause. Feeding is commenced immediately after the child recovers from the chloroform. Sterilized milk is introduced into the mouth with a medicine-dropper. Occasionally this will excite vomiting, but, if care is taken to slightly evert the lower lip of the patient during the act of vomiting, no blood can be forced between the flaps; and, if by chance any blood collects in the nasal cavity, it can be easily removed by gently blowing a stream of air into the nasal cavity from a clean air-bag. Nursing at the breast should under no circumstances be allowed.

Removal of the sutures can be safely done at the end of six or seven days. In babies and young children an anaesthetic should always be given, as the smallest movement on the part of the child will imperil the safety of the union.

After the removal of the stitches the scab is left in place, because it forms a very efficient support to the edges of the wound. J. E. Thompson (Texas Med. News, Aug., 1901).

IDIOT AND IMBECILE CHILDREN.

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IDIOT AND IMBECILE CHILDREN.

Etiology.—The causes of idiocy and imbecility are many and varied. Subtle causes, such as maternal impressions

during pregnancy, must not be accepted without searching for more substantial underlying causes.

Hereditary degeneracy, psychoses, and psychoneuroses of the parents are some of the causes.

Acute infectious and contagious diseases of the mother during pregnancy are causes, but additional search must always be made for underlying causes other than these.

Syphilis is a cause.

Autoinfection, myxœdema, is a cause.

If the acute contagious and infectious diseases during childhood leave the child an idiot or an imbecile, that child's heredity must be well scrutinized, as the latter is most certainly the underlying cause.

Alcoholism of the parents is the major cause responsible for the birth of idiot and imbecile children, according to the study of the cases cited.

Alcoholism of the parents not only caused idiocy and imbecility of the offspring, but also acts as a strong factor in reducing the birth-rate and increasing the death-rate.

Children of alcoholic parents, if not idiots or imbeciles, are apt to be invalid in many other ways.

Children of alcoholic parents generally die in early infancy of meningitis. L. G. Robinovitch (*Jour. of Mental Pathology*, July, 1901).

INFANT-FEEDING.

The conclusions from personal observations may be summarized as follows:—

1. Dilution of milk with cereal decoctions of proper strength renders the casein curd much more fine, soft, and digestible than simple dilution with water. There is no difference in the

LACTIC ACID, A NEW TEST FOR.

action of various cereals, such as barley, oats, rice, or wheat.

2. The above property is due mainly, if not wholly, to the starch in solution; the most desirable amount of starch in the milk mixture for practical use is approximately $\frac{3}{4}$ per cent.

3. Diastase, by converting the starch to dextrin and maltose, promptly lessens and removes the action of cereal waters upon casein. Its addition, therefore, is not a practical measure when the action upon the curd is desired.

4. Albumin-water has no practical value as a diluent of milk.

5. Lime-water added to milk has no more effect than water upon the character of the curd produced in the animal stomach. F. W. White (*Jour. Boston Soc. of Med. Science*, Dec. 4, 1900).

LACTIC ACID. A NEW METHOD OF TESTING FOR.

A very weak solution of ferric chloride of the strength of 1 to 2000, freshly prepared, is needed. The test is performed as follows: One cubic centimeter of the filtered gastric juice is put into a cylindrical separatory funnel, and to it is added ether up to 5 centimeters. The gastric juice with the ether is then well shaken, by which procedure the lactic acid, if present, is extracted by the ether. This is allowed to remain quiet for a little while to permit of the separation of the two liquids. About 2 centimeters of the iron solution are put into a test-tube of about half an inch in diameter, the iron solution appearing then practically colorless. The test-tube is now held inclined and the ether extract is allowed slowly to run from the separatory funnel on the wall of the test-tube, which is now turned to a vertical position. At the line of contact of the two liquids appears the canary-yellow ring, which is in very

marked contrast with both the subnatant and supernatant fluids. If this canary-yellow ring is not so well distinguished immediately, then the test-tube may be looked at again after a few minutes. To see this yellow ring better, a white paper is held behind the test-tube, the tester's back being turned toward the source of light. M. I. Knapp (N. Y. Med. Jour., Aug. 10, 1901).

LUES CEREBRI.

Psychopathic and neuropathic cases, distinctly stigmatized as degenerates, never suffer from arteriosclerosis ex-lues cerebri. It is in exceptional cases only that those subjects suffer from lues cerebri and progressive general paralysis. This interesting fact is of such great importance that in dubious cases, where there is difficulty in determining the existence or non-existence of lues cerebri, one may safely say that it does not exist if the patient is either of neurotic or psychical taint, such as: strangeness of character, abnormalities of mental equilibrium, mental diseases, born criminals, puellæ publicæ, etc. The existence of lues cerebri in such cases is so rare that Professor Joffroy and Dr. Jombault considered it of interest to report a case with the above-named taint, the subject being afflicted with cerebral syphilis.

Dr. Lalanne remarked that he, too, observed one similar case. Regardless of such rare exceptions, the presence of stigmata of degeneracy is often helpful in the diagnosis, and lues cerebri may, on the strength of that, safely be excluded. W. Tschisch (Jour. of Mental Pathology, July, 1901).

MORPHINE HABIT, PHYSIOLOGICAL CURE OF.

When the morphine is associated with some other addiction, the first thing is

to suppress the other stimulant, whatever it may be. If it is alcohol or cocaine, there is no difficulty worth speaking of in so doing; indeed, the quantity of morphine taken becomes more satisfying, being antidoted, as it were, in a certain degree, by the other stimulants, when they are taken.

The actual time necessary for the cure of any given case depends entirely upon the thoroughness with which the craving can be prevented by the means adopted. The slower the reduction of morphine, the less distressing is likely to be the craving. The plan personally adopted is to proceed as fast as possible, but *as slowly as necessary to effect a cure without distress*.

It is desirable first to bring about a change as soon as possible in the mode of administration of the morphine. If this can be effected earlier in the treatment, so much the better; but, if not, there should be a gradual substitution of rectal for hypodermic injections from the moment the patient is reduced to 2 grains by the skin. From this point downward twice as much should be given by the rectum as is suppressed by the skin. In consequence of this the patient who has commenced these substitutive rectal injections at 2 grains hypodermically will be taking 4 grains by the rectum when the hypodermic injections are suppressed.

When giving up morphine, it is a question of giving up not an habitual sedative, but principally a stimulant, and a stimulant of such transcendent power that the vital collapse which results from its suppression far exceeds anything that could result from the privation of any other stimulant. By gradual reduction and change from the more stimulating hypodermic to the sedative rectal injections, the collapse that would have re-

sulted from sudden hypodermic suppression is avoided.

The heart always suffers, and the sphygmographic tracing shows a sluggishness that is only too eloquent as regards discomfort. Heart-tonics form, then, the first means of preventing the craving. The next great factor of the craving is hyperacidity of the stomach and organism generally, and this naturally suggests as a treatment the administration of bicarbonate of soda.

Various other means of relief may be applied according to symptomatic indications, but the last of personal therapeutic triad is the hot-air bath.

Considering that acidity of the system in general, as well as hyperacidity of the stomach, plays a part in the causation of the craving, one should always insist on a moderate and, as a general rule, on a non-alcoholic *régime*. In cases where there is at the same time neurasthenia there may be spells of restlessness and a tendency to movement, but at the same time a disinclination to exertion. Here a hammock or a rocking-chair affords the means of combining both movement and repose. The patient must try to woo back sleep, and for this purpose there must be no reading in bed during the progressive reduction. For insomnia cerebral galvanization is sometimes magical, but if unsuccessful the best hypnotic is trional. Fluid extract of coea and sometimes kola are used frequently, and also valerianate of ammonia.

A warning is given against the synthetic derivatives of morphine recently devised: dionin and particularly heroin, which is largely vaunted now as the treatment of the morphine habit *par excellence*. The craving following its use is infinitely more unmanageable than is that of morphine, and in two cases treated recently the doses were rapidly

increased, and the patient became violent when it was attempted to suppress it. It is only second to cocaine as a drug to be avoided. W. O. Jennings (*Lancet*, Aug. 10, 1901).

MYOCARDIUM, DISEASES OF THE.

Treatment.—The cause of the cardiac or arterial disease must be, if possible, removed. Then there should be a careful regulation of the habits and conditions of life and the occupations, so that the individual shall be protected, so far as possible, from any kind of severe mental or physical strain. It is quite as important that the mental and moral atmosphere in which the patient lives shall be favorable as that his exercise and habits of life shall be regulated. Much is gained by sending these patients during the cold months to a warm, dry, equable climate. The hygienic conditions should all be most carefully regulated as regards the habitation, sleeping-room, ventilation, clothing, hours of sleep, exercise, etc. The diet should be simple and nutritious, composed largely of albuminous foods; the heartiest meal of the day should be taken at midday; very little fluid should be taken with the meal, and the strictest injunctions should be given in regard to the thorough mastication of the food.

Frequently a serious error is made in giving patients with a weak and laboring heart and an overflowing circulation a milk diet or large quantities of fluid, because perhaps of the presence of an albuminuria. The albuminuria is often largely the result of a venous congestion. Fluids in such conditions should be reduced to a minimum, and the diet made as dry as possible.

To improve digestion bitter tonics, mineral acids, and peptonizing agents may be employed, and the bowels should

be kept very free. The remedies on which chief reliance is always placed to tone up the heart are strychnine, glonoin, and digitalis, and ordinarily these three agents should be combined.

To limit further fibroid change and to reduce the arterial tension the prolonged use of moderate doses of iodide of potash has given the greatest satisfaction. Hydrotherapy, the Nauheim treatment, and hill-climbing according to the methods of Oertel, are of the greatest service, in selected cases. H. M. Biggs (*Yale Med. Jour.*, Sept., 1901).

NERVOUS DISEASE, TREATMENT IN CONVALESCENCE FROM FUNCTIONAL.

In the first place, these patients must be schooled or educated in self-control. A certain amount of time will be required, therefore, by the alienist and neurologist, in explaining away, to intelligent people, certain fads with which they have become infected. If one is dealing with a crank, diplomacy will be shown by dropping the subject.

As regards rest, the convalescent should be taught responsibility in the care of himself. It is an axiom of nature that rest should follow after the central neurons have once been depleted, physiologically or pathologically. Even in cases of hysteria with full muscular vigor it is doubtful if overuse of the muscular system will but prevent fullest recovery. In the cases of hysterical palsies, it is necessary, however, to encourage exercise to a limited degree in order to give confidence to the patient, as well as for development of the wasted muscles. Thus, the most desirable forms of exercise during the late, ultimate convalescence from neural maladies are, in a general way, to be made different from the exercise gotten by the patient in his

usual routine of life. If the patient can be kept off his limbs, it will be more advantageous for rest of the central nervous system, and thus recreate that reserve force which has become wanting in them. So that rowing, canoeing, and horseback-riding will be much more valuable than golfing, tennis-playing, or bowling.

It is important to treat symptomatic organs that are disturbed in function during convalescence from the disease under discussion; thus, in cases of gastralgia or of supersensitiveness of the gastro-intestinal tract, it may be necessary to treat the mucous membrane. In these cases one has a neurosis of the vagi nerve and of the abdominal sympathetic system. Frequently, peptonization of the large quantities of milk taken will be of great value in aiding hypernutrition. The skilled use of massage is also a measure which will help metabolism in the muscle itself.

Excitement of an unusual nature should be strictly prohibited in cases of neurasthenia, and this is especially more important in the convalescent from chorea. In the latter disease even pleasurable excitement may be sufficient to cause irritation, and relapse to follow. F. Savary Pearce (*Inter. Med. Mag.*, Sept., 1901).

CEDEMA (GENERAL), WITHOUT ALBUMINURIA, IN CHILDREN.

General edema in children without albuminuria is seen in marasmic infants, in congenital syphilis, in the later stages of tuberculosis, and in association with excisions, diarrhoea, and anemic conditions; but, apart from such conditions, there is a group of cases of quite different course and pathology. As an illustration may be quoted the case of a boy, P. G., aged 4 years, who had an attack

of dropsy similar to his present attack a year previously. He was ill for a month, and then recovered. His present attack had come on a week before with swelling of legs, face, and abdomen. He had never had scarlet fever, and was a well-nourished boy. The eyes were puffy, the abdomen cedematous with free fluid in it, and there was cedema of the lips. The heart was normal, and there was no albumin in the urine nor any sugar. The average quantity of urine in twenty-four hours was 10 ounces, and specific gravity always high: 1.028 to 1.035. The cedema rapidly diminished, and the boy left the hospital well in fourteen days. This is considered a typical case of what Dr. Herrigham calls toxæmic dropsy. F. L. Batten (*Pediatrics*, Sept. 15, 1901).

PERITONEAL INFECTION.

Conclusions regarding peritoneal infection may be formulated as follows:—

1. The peritoneum has an enormous absorbing function, being capable of taking up 3 to 8 per cent. of the entire body-weight in an hour.

2. Minute solid particles are carried in an incredibly short time from the peritoneal cavity through the diaphragm into the mediastinal lymph-vessels and glands, and then into the blood-circulation, by which they are quickly distributed to the abdominal organs and to the bone-marrow.

3. The granular bodies are at first largely transported as free bodies, swept along by the lymph-currents; but later the leucocytes act as the carriers.

4. There is, normally, a force in the peritoneal cavity which carries fluids and foreign particles toward the diaphragm, regardless of posture, although gravity may greatly favor or retard the current.

5. After the introduction of micro-organisms into the peritoneal cavity there is great decrease in their number within the first hour, both through their intraperitoneal destruction and through their rapid absorption into the general system, where they are dealt with. There is, therefore, no possibility of limiting free infectious matter to any part of the peritoneal cavity by mechanical means.

6. Vigorous streptococci which remain behind develop, within six hours, a repellent or destructive quality for leucocytes, and the lethal combat is, therefore, inaugurated and well under way before drainage, as ordinarily employed, can possibly exercise any beneficial action. In many cases, therefore, in which surgical drainage is employed, the patient recovers in spite of, and not because of, it.

7. A moderate amount of even virulent organisms, carried by the blood to the lungs, liver, spleen, kidneys, gastrointestinal tract, and bone-marrow may be destroyed or eliminated without the least harm to the patient, whereas, if the same amount of infectious matter is detained about a surgical field in the abdominal cavity, or stagnates in a dependent pocket, they may generate myriads of others, and thus overwhelm the patient.

8. In many cases, therefore, drainage, as ordinarily employed, is superfluous, or even dangerous, and the rational method is to remove all possible *débris* and infectious matter by thorough irrigation and then leave 1 liter of salt solution—0.6 per cent.—in the abdominal cavity, and, in order to promote and hasten natural drainage, supplement this by an enema of a liter of salt solution, given while the patient is well under anæsthesia and in the Trendelenburg posture.

9. Under this plan the patient is greatly stimulated, shock is minimized

or averted, the urinary excretion is greatly increased, and thus toxic matters are more easily eliminated without irritation to the kidneys or bladder; peritoneal infection is quickly eliminated while yet minimum in amount; thirst is alleviated or entirely prevented; intestinal peristalsis is promoted, and consequently tympanites is of less frequent occurrence, and the early action of the intestines evacuates infectious matter thrown out into this canal by the blood-vessels of the villi.

All these factors combine to reduce mortality after abdominal sections; to decrease pain, discomforts, and complications of the first forty-eight hours; and, finally, to hasten the recovery of the patient.

Cases in Which Peritoneal Infusions may be Dangerous, and Therefore Should Not be Employed.—1. Ascites accompanying the surgical lesion, which indicates that the natural peritoneal drainage is already deficient; therefore to add an additional burden through the saline infusions is not advisable.

2. General purulent peritonitis. J. G. Clark (Jour. Amer. Med. Assoc., Aug. 10, 1901).

PULMONARY TUBERCULOSIS, THE INHALATION OF FORMIC ALDEHYDE AS AN AID IN THE OPEN-AIR TREATMENT OF.

Formaldehyde has been personally used in the Inglewood Sanatorium:—

1. In the form of gas.
2. Formalin (40-per-cent. solution).

The gas was generated in two ways:—

(a) *The Dry Method.*—In this method paraform tabloids—called dry formalin—were placed on a metal tray over a methylated spirit-lamp (alformant lamp).

(b) *The Moist Method.*—In this method, in addition to the above ap-

paratus, there is a boiler for generating steam, which, mixing with the formaldehyde-vapor, renders it more diffusible and penetrating in its action. Of these two methods, the latter is the more efficacious.

Method of Using.—1. The vapor is administered either in the patient's bedroom or in the inhalation-room, which faces south, having plenty of sunshine, for, the drier the atmosphere, the more the vapor is generated, the greater its penetrating power. The doors and windows are partially or wholly closed, the lamp is lighted, the boiler is filled with warm water, the paraform tabloids are put in, and the patient sits in a lounge chair or lies in his bed and inhales the gas.

The vapor at first causes irritation of the eyes and nostrils, which passes off after a few minutes. The inhalation is continued for one, two, or three hours, when the doors and windows are again opened.

2. The aqueous solution of the vapor, or formalin (40 per cent.), as it is called, is used in two ways:—

(a) It is used (6- to 10-per-cent. solution) in an inhaler, which the patient places over his mouth, using it from four to six hours in the course of the day.

(b) It is also used in the form of fine spray, or in a nebulizer, at a strength of 6- to 10-per-cent. solution mixed with glycerin.

The patient uses both these methods in the course of the day, either when he is in the open air or in his day-shelter with doors and windows wide open.

Fifteen patients (12 men and 3 women) have been treated in this way for three to five months. All of them have been patients in the sanatorium, undergoing the open-air treatment, for six to eleven months.

with a cover-slip, and examine under any moderately high power. Look carefully, with not too strong illumination, for an elongate oval egg with thin shell, and with protoplasm either unsegmented or in the early stages of segmentation. The older the faeces, and the warmer the weather, the more advanced will be the segmentation. The egg of the *Uncinaria* must not be mistaken for the eggs of *Ascaris lumbricoides*, which have a thick, gelatinous, often mammillated, covering and unsegmented protoplasm, or the eggs of the *Oxyuris vermicularis*, with a thin asymmetrical shell (one side being almost straight) and containing an embryo, or eggs of whipworms, *Trichocephalus dispar*, possessing a smooth, thick shell, apparently perforated at each pole, and unsegmented protoplasm.

In most cases of infection with intestinal worms the simple method just described will suffice for a positive diagnosis. Before giving a negative opinion, however, a procedure called "sedimenting the faeces" may be followed. One or two ounces of faeces, fresh or dry, are mixed with water and placed in a large bottle, retort, jar, or any other receptacle; enough water is added to make a pint to two quarts, according to the amount of faeces; they are shaken or stirred thoroughly and allowed to settle; the floating matter and the water down to near the sediment are poured off; then the washing and settling are repeated several times, or as long as any matter will float. The last time this is done, a bottle or graduate should be used, with a smaller diameter, and when the material is thoroughly settled, the fine sediment is to be examined. It will be found that the eggs have settled more numerous in the fine sediment than in the coarse material.

In case an unusual amount of large,

coarse material is present in the faeces, it is sometimes convenient to pour the entire mass through a sieve, rejecting the portion left in the sieve; or to wash the faeces in a sieve, holding the latter under water.

If uncinariosis is suspected and it is neither practicable to make a microscopical examination nor to delay matters until a specimen can be sent away for examination, a small dose of thymol may be given, followed by oil, and all the stools passed collected. The stools should be washed thoroughly several times in a bucket, and the sediment examined for worms about an inch long, about as thick as a hair-pin or hat-pin, and with one end curved back to form a hook. If these are found, definite treatment is to be instituted. Ch. Wardell Stiles (Texas Med. News, July, 1901).

VACCINATION WITH GLYCERINATED VACCINE.

In comparing the findings of to-day with those of a few years ago the first irregularity met with is in the period of incubation. The usual time allowed for the appearance of the papule is from three to five days. With the glycerinated lymph, however, it has been found that, in a series of 355 successful vaccinations, the average date for the appearance of the papule was between the eighth and ninth days, the earliest being on the fourth and the latest on the fifteenth day. To collect these figures 500 cases were personally examined, 58 of which were primary vaccinations, all of which were successful, and developed the papule on the seventh day (average); of the remaining 442 a number had been vaccinated within the last year and the vast majority of the 446 unsuccessful cases during the last five years.

Glycerinated lymph is susceptible to

the influence of both light and heat, and a thoughtless chemist or physician may expose his stock to either one or the other, and the proximity of a register or an open package in a surgery will account for a great number of not only delayed and weakened reactions, but of unsuccessful vaccinations.

Following the appearance of the papule, the eruption passes through the same stages as described in text-books, namely: vesication, with umbilication and marked areola; pustulation and scabbing, and finally desquamation, with the foveated cicatrix. One is warned against the acceptance as a thorough reaction any other than those presenting these local manifestations, and particularly is attention drawn to a spurious variety commonly known as the red-raspberry excrescence; it just appears as a red elevation at the site of inoculation, and closely resembles the papule of true vaccinia. It does not, however, progress to vesication, and the thin scab which forms over it, when it falls, leaves the original elevation, which usually persists for some weeks.

After observing 2000 cases of vaccination during the past eighteen months, skin eruptions, generalized vaccinia, and localized necrosis were the only ones observed that could be rightly termed complications, and they were rare, only one case of generalized vaccinia being reported. H. R. Frank (*Canada Lancet*, Aug., 1901).

WOUNDS, ASEPTIC ADHESIVE STRIPS IN THE CLOSURE OF.

An adhesive plaster, both aseptic and adhesive in nature, is made under the name of "zinc oxide aseptic strips." When once applied properly, it will hold against a great deal of tension. Where drainage is needed, they can be readily

used—allowing the gauze or drainage material sufficient room at the lower margin of the wound.

In major surgery personal procedure is, after the deeper tissues have been united by sutures, then the external surface is thoroughly dried by alcohol used on a sponge. Better approximation is made by $\frac{1}{4}$ -inch strips, applying them about the same distance apart, than with wider strips. This gives a view of the wound at any time.

After applying the strips the usual dry dressing of iodoform, aristol, or boric acid is applied, and the usual pad and dressings follow. In applying the first strip an assistant holds the tissues well together, and, applying one end of the strip to the skin surface, the other is carried across the incision, being held tight and applied to the skin surface on that side of the wound. It is best to apply the central strip first, and work toward either end of the wound. Should any of the strips be put on too loose the first time, one end can be readily raised and drawn more snug and again applied. These strips are left on from seven to fourteen days.

Not the least trouble is experienced in removing the strips. The best method is to loosen both ends and gently free them just to the margin* of the wound, then taking them both together they can be freed from the wound itself with no danger of pulling it open. In case the strips should stick, a little peroxide of hydrogen applied to them will cause them to be readily and easily removed. T. I. Motter (*Pacific Med. Jour.*, Sept., 1901).

YAWS.

Diagnosis. — Yaws belongs to the group of the "infective granulomata." It is distinguished from (1) actinomy-

cosis and rhinoscleroma by the absence of their specific micro-organisms; (2) from the lepromata by the absence of Hansen's bacillus; (3) from mycosis fungoides by the absence of "fragmentation" of the infiltrating cells, and of degenerative changes with the formation of products of degeneration in the collagen and elastin, and by the presence of the peculiar epidermal changes of yaws; (4) from tuberculosis, apart from the tubercle bacillus, by the absence of the characteristic architecture, with its giant-cells, daughter-plasma-cells, more marked disintegration of the fibrous stroma, and complete disappearance of the blood-vessels; and (5) from syphilis it is distinguished by the following details which, considered collectively, strongly suggested that yaws and syphilis were different histological entities: (*a*) Cellu-

lar infiltration: plasma-cells are not so definitely arranged in rows or clustered around the blood-vessels as in syphilis; no large multinuclear cells (chorioplques) or true giant-cells, or intracellular hyaline degeneration are noted in yaws. (*b*) Fibrous stroma: rarefaction of the collagen is more marked than in syphilis, but no organization or colloidal degeneration (such as occurs in syphilitic gummata) is found. (*c*) Blood-vessels: there are no distinct proliferative changes in the vessel-walls of endothelium as frequently occurs in syphilis. (*d*) Epidermis: marked proliferation and down-growth of the epithelium, with a great thickening of the horny layer (due to hyperkeratosis or parakeratosis) are characteristic features of yaws, while they are unusual in syphilis. J. M. H. MacLeod (Lancet, Aug. 10, 1901).

A NEW CLINICAL LABORATORY.

THE Philadelphia Clinical Laboratory, under the management of Dr. Pennington and Dr. Atkinson, will open in the Professional Building, October 1st. All kinds of clinical work will be done: bacteriological, pathological, and chemical. Doctors Pennington and Atkinson are well equipped for the undertaking, being graduates of the University of Pennsylvania. Each department of the laboratory will be in charge of a specialist, and no undergraduate assistants will be employed. Such an enterprise, if rightly conducted, should be well supported.

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

PRACTICAL FIRST PRINCIPLES, SIMPLIFYING THE STUDY OF NORMAL AND ABNORMAL STRUCTURE AND FUNCTION, AND AIDING DIAGNOSIS. Designed for the Use of Students and Practitioners of Medicine. By A. H. P. Leuf, M.D. Medical Council, Philadelphia, 1901.

THE ILLINOIS STATE BOARD OF HEALTH: REPORT OF THE SANITARY INVESTIGATIONS OF THE ILLINOIS RIVER AND ITS TRIBUTARIES. With Special Reference to the Effect of the Sewage of Chicago on the Des Plaines and Illinois Rivers prior to and after the opening of the Chicago Drainage Canal. 1901.

A TREATISE ON THE ACUTE, INFECTIOUS EXANTHEMATA. Including Variola, Rubella, Scarlatina, Rubella, Varicella, and Vaccinia, with Especial Reference to Diagnosis and Treatment. By William Thomas Corlett, M.D., L.R.C.P.Lond., Professor of Dermatology and Syphilology in the Western Reserve University; Physician for Diseases of the Skin to Lakeside Hospital; Consulting Dermatologist to Charity Hospital, St. Alexis Hospital, and the

City Hospital, Cleveland; Member of the American Dermatological Association and the Dermatological Society of Great Britain and Ireland. Illustrated by 12 Colored Plates, 28 Half-tone Plates from Life, and 2 Engravings. Pages viii-392. Size, 6 1/4 by 9 1/4 inches. Sold only by Subscription. Price, Extra Cloth, \$4.00 net, Delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry Street.

AN INTERNATIONAL SYSTEM OF ELECTRO-THERAPEUTICS. For Students, General Practitioners, and Specialists. By Numerous Associated Authors. Edited by Horatio R. Bigelow, M.D., Permanent Member of the American Medical Association; Fellow of the British Gynecological Society and of the American Electro-therapeutic Association; Member of the Philadelphia Obstetrical Society, of the Société Française d'Electro-thérapie, and of the Anthropological and Biological Societies of Washington, D. C.; Author of "Gynecological Electro-therapeutics," and "Familiar Talks on Electricity and Batteries." Second Edition. Revised and Brought up to Date, with Several New Departments Embodying the Most Recent Developments of the Science. Edited by G. Betton Massey, M.D., Ex-President and Fellow of the American Electro-therapeutic Association; Member of the American Medical Association; Author of "Conservative Gynecology and Electro-therapeutics," etc. Thoroughly illustrated. Royal Octavo. Pages x-1147. Prices, net, Delivered, Extra Cloth, \$6.00; Sheep, \$7.00; Half-russia, \$7.50. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry Street.

TRANSACTIONS OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION. Complete Account of Ninth Annual Meeting, Held at Washington, D. C., September 19, 20, and 21, 1899; also Tenth Annual Meeting, Held at New York City, September 25, 26, and 27, 1900. Illustrated. Pages xv-391. Size, 9 1/4 by 6 1/4 inches. Price, Extra Cloth, \$2.00 net, Delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry Street.

Foreign Bodies in the Rectum. With Report of A Case. By Lewis H. Adler, Jr., M.D., Philadelphia, 1901.—Pruritus Ani, with Especial Reference to its Local Treatment. By Lewis H. Adler, Jr., M.D., Philadelphia, 1900.—Impetigo Contagiosa. By Jay F. Schamberg, A.B., M.D., Philadelphia, 1901.—Small-pox, with Particular Reference to the Prevalent Epidemic. By Jay F. Schamberg, M.D., Philadelphia, 1901.—The Uses of Phenol in Dermatology. By Jay F. Schamberg, M.D., Philadelphia, 1901.—Duhring's Disease in Childhood. By W. S. Gottheil, M.D., New York.—Actinotherapy in Cutaneous Medicine: a Preliminary Communication. By W. S. Gottheil, M.D., New York, 1901.—Accidents Attending Adenoid Operations. By C. R. Holmes, M.D., and H. S. Garlick, M.D., Cincinnati, O., 1901.—Some Thoughts on the Ethics of Medical Journalism. By Burnside Foster, M.D., St. Paul, Minn., 1901.—On the Advancement of Surgical Pediatrics. By Samuel W. Kelley, M.D., Cleveland, O., 1901.—Gouty Affections of the Kidneys. By Richard K. Macalester, M.D., Glenwood Springs, Col., 1901.—Remarks on Tuberculosis and its Treatment. By Dr. Baradat, Cannes, 1901.—Studier öfver Albuminuri i dess Lindrigaste Kliniska Form. I. Hedenius, Upsala, 1900.—Experimentelle Untersuchungen über das Conserviren von Fisch und Fleisch mit Salzen. Alfred Pettersson, 1900.—Undersökningar öfver De Köld-, Värme- och Smärtpercipierande Nervändarnes Relativa Djupläge I Huden Samt öfver Köldnervändarnes Förhållande Till Värmeretmedel. Af Torsten Thunberg, 1900.—Undersökningar öfver Smärtsinnet. Af Sydney G. L. R. Alrutz, 1901.—Note sur Deux Cas Peu Communs de Suicide. Par le Dr. Georges Bogdan, Jassy, 1901.

From the United States Department of Agriculture, Washington, D. C., the following: Sources of the Agricultural Imports of the United States, 1896-1900. By Frank H. Hitchcock, 1901.—Distribution of the Agricultural Exports of the United States, 1896-1900. By Frank H. Hitchcock, 1901.—Exhibit of the Bureau of Chemistry at the Pan-American Exposition, Buffalo, N. Y., 1901. Prepared under the Direction of Harvey W. Wiley, Chief of Bureau, by E. E. Ewell, W. D. Bigelow, and Logan Waller Page.—Wheat-growing and General Agricultural Conditions in the Pacific Coast Region of the United States. By Edwin S. Holmes, Jr., 1901.—Rates of Charge for Transporting Garden Truck, with Notes on the Growth of the Industry. By Edward G. Ward (Jr.) and Edwin S. Holmes (Jr.), 1901.—Wages of Farm-labor in the United States. Results of Eleven Statistical Investigations, 1866-1899. 1901.—The Angora Goat. By George Fayette Thompson, 1901.—Sorghum-Syrup Manufacture. By A. A. Denton, 1901.—Experiment-Station Work, xviii, 1901.

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Cyclopædia of the Year's literature.

DIPHTHERIA.

Diagnosis.—R. M. Beaton, F. Foord Caiger, and W. C. C. Pakes¹ have been making a series of observations in order to test the value of stain in the diagnosis of diphtheria. As a result of these

observations, it is felt that Neisser's stain is a valuable one in several ways:

First, a positive diagnosis is rendered more certain for those who cannot be

¹ Brit. Med. Jour., Sept. 21, 1901.

considered as experts, since it is often easier to diagnose the Klebs-Loeffler bacillus after staining by Neisser than after staining by ordinary methylene-blue, as for the inexperienced the bacilli after staining by Neisser's method are much more characteristic than after staining by methylene-blue.

Secondly, a trustworthy positive result may be obtained from the microscopical examination of a preparation made direct from the swab, and this method is not only more reliable when Neisser's stain is used than when the ordinary methylene-blue is employed alone, but also is more obvious.

Thirdly, the use of Neisser's stain does not appear to introduce any fallacy not found in the application of other methods.

Ch. Lesieur² notes seventy varieties of diphtheria and pseudodiphtheria bacilli from the stand-point of agglutination by antidiphtheritic serum. This property is an inconstant characteristic of the true Klebs-Loeffler bacillus, and is in no way related to its virulence. Certain varieties of this organism can be agglutinated by the serum of horses immunized by cultures, while they do not react to the serum of horses immunized by toxins. The pseudobacillus conducts itself toward these sera precisely as does the true organism, and by this means cannot be differentiated from it.

Complications.—According to D. N. Blakely and F. G. Burrows,³ during a period of two and one-half years there were treated at the South Department of the Boston City Hospital 157 patients who had measles and diphtheria. Of these, 54, or 34 per cent., died. (The death-rate in uncomplicated-diphtheria patients for practically this same period was less than 13 per cent.)

From these cases one must conclude

that the existence of diphtheria or the possibility of its onset should be considered in every case of measles, for the congestion of the mucous membrane of the tonsils and air-passages caused by the measly process renders it especially vulnerable, and an unusually good field for the growth of the bacilli of diphtheria. Nasal obstruction or laryngeal obstruction arising during an attack of measles almost certainly means diphtheria. If the initial fever of measles disappears, and there is later a sudden rise of temperature, or if the cough of measles becomes "brassy" in quality or paroxysmal in character and is accompanied by an elevated temperature, the possibility of diphtheria must be considered. If the initial fever persists and aphonia develops, diphtheria is probably the cause. Uncomplicated measles in very exceptional cases may produce aphonia, but aphonia with or without a rise of temperature usually means diphtheria, and aphonia with a rise of temperature always means diphtheria. Uncomplicated measles is usually accompanied by a more or less abundant serous nasal discharge; but if this discharge becomes purulent or muco-purulent in character, or if there is partial or complete nasal obstruction accompanied by a glairy discharge, diphtheria should be suspected and cultures taken. But if the patient's general condition in addition to the above symptoms suggests diphtheria, antitoxin should be given at once without awaiting the results of cultures. In all obscure cases the patient should be given the benefit of the doubt—and antitoxin.

If an epidemic of measles occurs in an

² Comptes Soc. de Biologie, Aug., 1901.

³ Boston Med. and Surg. Jour., July 25, 1901.

institution in which large numbers of children are cared for, each child as it develops measles should be given an immunizing dose of antitoxin, and all inmates of the institution should be carefully watched for the earliest symptoms of either disease.

Prognosis.—Rabot⁴ argues that the subcutaneous injection of saline solution in a child with diphtheria may throw light on the prognosis. If, after giving the injection, the child voids more urine without vomiting or diarrhoea, the diphtheria will run a mild course, no matter how stormy the onset. But if the amount of urine is not increased, and there is vomiting or diarrhoea, the prognosis is grave, as the toxins have affected the heart-fibers, and the organ is thus unable to respond to the action of the saline solution.

Diet.—In diphtheria, R. G. Kirton⁵ says, feeding may be carried out by (1) the mouth, (2) the nasal tube, (3) the rectum, and (4) subcutaneous injections. In all cases, when practicable, food should be given by the mouth. The conditions, however, which render mouth-feeding impossible or inadvisable are: (1) inability to swallow, owing to pain or faucial swelling; (2) some cases of regurgitation; (3) entrance of food into the larynx in spite of slow and careful feeding, indicated by the patient coughing when fed; (4) in certain cases, owing to struggling, the time taken, and the exhaustion consequent upon the mouth-feeding; and (5) continued vomiting. Cases occur in which patients can be fed with a nasal tube without vomiting, although they vomit when fed by the mouth.

Nasal feeding can be performed with a soft-rubber tube, but occasionally a stiff tube is necessary. Generally an interval of four hours is advisable, but

this must depend to a certain extent upon the individual case. Milk peptonized, if necessary, or combined with a cereal food should be the chief ingredient. Raw meat-juice, eggs, cream, brandy, or medicine may be added. About 4 ounces is often as much as a child from three to five years old will be able to retain and absorb. All food should be strained, measured, and given warm. If vomiting occur, it may be due to the amount or contents of the meal or to the frequency of administration. If after various changes the vomiting persists, rectal alimentation must be resorted to.

Rectal alimentation should be resorted to when feeding by the mouth or the nose fails or is insufficient. A soft-rubber tube is passed as far up the rectum as possible, and the fluid is allowed to flow in by the force of gravity alone. The food should be given warm about every four hours, and should be preceded about an hour by a feeding of 3 or 4 ounces of warm water given in the same manner as the milk-feeding. The bowel should be irrigated every twenty-four hours. In young children the quantity of food varies from 2 to 4 ounces. Peptonized milk is the basis of the feeding, and often is the only constituent. Raw meat-juice, white of eggs, and occasionally yolk of eggs may be added. In some cases brandy may be added to the milk. It may, however, provoke a diarrhoea, and thus may be better tolerated if given apart from the feeding and diluted only with water. If the feedings are not retained or only retained in part, their amount should be diminished, their frequency lessened, or some ingredient of

⁴ Bull. Méd., Sept. 4, 1901.

⁵ Lancet, June 15, 1901.

the mixture — *e.g.*, brandy — omitted. Sometimes washing out of the bowel and giving it a rest for a time is useful, or starch and laudanum enemata may be required.

In addition to the above forms of feeding the subcutaneous injection of sterile horse-serum is to be recommended. This serum should be used when the amount of nourishment taken by the stomach or rectum, or both, appears to be insufficient to support life. If given over a prolonged period, 20 to 40 cubic centimeters are often as much as it is advisable to inject daily.

Prophylaxis. — In considering measures to be adopted to combat the occurrence of post-scarlatinal diphtheria R. W. Marsden⁶ says one must remember that the particular cause of the disease can be transmitted not only by direct contact, but also by indirect means. All dry dusting should be condemned, it being replaced by the use of damp cloths. Instruments such as syringes, tongue-depressors, etc., should be disinfected each time after use, and the same should be done with eating-utensils. Then if a separate bath-towel cannot be provided for each patient, at least the nose, ears, and face should always be wiped by a towel reserved for that patient, the same rule being observed for other articles used in washing. In addition, it is advisable, as far as possible, to prevent the constant interchanging of toys.

A regular periodical inspection of all the convalescent cases, by the resident medical officer, during their stay in the hospital, will bring about the earlier detection of suspicious cases, which should then be temporarily segregated. The suspicious cases should then be examined bacteriologically, and, if diphtheria bacilli are found, immediately isolated.

A bacteriological examination of the throat and, where rhinitis is present, of the nose of every patient admitted with scarlet fever would effectually abolish the danger.

By far the most potent remedy in preventing the spread of this disease is the periodical injection, every three weeks, of a protective dose (400 to 500 units) of antitoxin to each exposed patient. The objection to its general use, however, is the pain entailed. Still, where diphtheria has continued to show itself, despite the utmost care, in a certain ward, it must be resorted to.

Whenever a case of diphtheria arises in a convalescent ward, no child should be allowed to leave that ward within a week or ten days, unless protected by antitoxin, all children being kept in bed during the period of quarantine.

Treatment. — McFarland⁷ considers that it is always best to give the maximum of antitoxin at the start, as an excess of it will do very little harm to the patient, while if too little has been given, when it is increased later, the dose then may have no effect on the disease, which has then been allowed to progress too far.

Nietret⁸ reports a case in which 25,500 units of antitoxin were administered within twelve days. This large dose did not cause any disagreeable symptoms; the only thing that was noticed was a slight eruption.

W. R. Griess⁹ thinks that the following might be said concerning the use of antitoxin:—

1. Antitoxin should always be given as soon as the diagnosis is made with certainty.

⁶ Med. Chronicle, Aug., 1901.

⁷ Therap. Gaz., July 16, 1901.

⁸ St. Louis Med. Rev., July 6, 1901.

⁹ Amer. Med., Aug. 31, 1901.

2. Children require larger doses, as their natural resources for fighting disease are always less than those of adults.

3. In mild cases of diphtheria 2000 units should be given as an initial dose, and if no improvement takes place within twelve hours it should be repeated.

4. All laryngeal cases, or cases in which prostration is severe, should have 4000 units as an initial dose, and 2000 units in eight or twelve hours if there is no marked improvement.

5. Intubation in children should be practiced before the child becomes exhausted, and, if not successful, no time should be lost in making a tracheotomy. Before performing either of these operations, however, a stimulant should be administered, as the shock during these operations is very great. The writer has seen more than one child saved by an hypodermic of ether, injected when the patient was apparently dead, after the trachea had been opened; this, together with artificial respiration, caused the child to soon show signs of life.

The results to be expected from antitoxin depend especially upon two things: (1) when used in the course of the disease (late or early), and (2) in what type or class of cases it is employed.

In a study of the present aspect of the antitoxin treatment of diphtheria J. D. Steele¹⁰ turns to the figures of the committee of the American Pediatric Society, embracing 5576 cases of diphtheria (moribund cases excluded), collected mostly from the private practice of American physicians, including two rather short series from the hospitals of New York and Chicago. The mortality was 8.8 per cent.

Cases injected upon the first day gave a death-rate of 4.9 per cent.; upon the

second day, 8.6 per cent.; upon the third day, 12.7 per cent.; upon the fourth day, 22.9 per cent.; and after the fourth day, 38 per cent.

The result of this report compares favorably with any that has been published in this country or in Europe.

To illustrate the importance of the need of the early administration of the antitoxin, Baginsky's figures are even more striking. Cases injected upon the first day give a death-rate of from 1.07 per cent. to 2.7 per cent. Cases injected upon the second day give a mortality of 5.7 per cent. to 14.1 per cent. The study of these and other figures has led to the following conclusions:—

1. Under the use of antitoxin the death-rate has been reduced in round figures to about 16 per cent. against a former death-rate of from 65 per cent. to 25 per cent. In favorable circumstances the mortality is 8 per cent. or lower.

2. The death-rate varies greatly according to the promptness with which the remedy is given. It falls to 3 per cent. or 5 per cent. in cases injected upon the first day, and increases rapidly until it reaches 35 per cent. or 40 per cent., in cases in which injection has not been made before the fourth day or after.

Results in hospital practice are much less satisfactory than those in private practice. The reason for this is probably that in the former case the patients are seen and injected earlier, probably come from better hygienic surroundings, and show correspondingly greater resistance.

Cuno¹¹ gives the results of the treatment of diphtheria with antitoxin in

¹⁰ St. Louis Med. and Surg. Jour., Oct., 1901.

¹¹ Münchener med. Wochen., May 14, 1901.

Frankfort. Exanthemata, swelling of joints, pyrexia, and albuminuria are much less often observed now than when the serum was first introduced. Local suppuration very rarely occurs if sufficient precaution is taken. The use of a syringe made entirely of glass is a great advantage from an aseptic point of view. From 1883 to 1894, inclusive, 1928 children were treated for diphtheria, and a mortality of 36.7 per cent. occurred. In 1894 (October) antitoxin was first used, and from that time up to December, 1900, 1257 children were treated, and a mortality of 9.4 per cent. resulted. Of these 1257 children, 845 were proved bacteriologically to have diphtheria. For laryngeal stenosis tracheotomy is now only performed within the first few hours after admission into hospital. The mortality-rate up to 1899 of tracheotomy cases was not improved in proportion to the non-operated cases. In the first quarter of 1899 every tracheotomy case died, and although during the subsequent three-fourths of the year they got better results, the mortality for the whole year was 51 per cent. For this reason, early in 1900 intubation was substituted for tracheotomy. In all, 31 children suffering from laryngeal diphtheria were intubated, and of this number 8 (=25.8 per cent.) died. But in 21 of the 31 cases tracheotomy had to be performed. The child is intubated when the dyspnoea calls for operative treatment, and a little later, after the mucus and membrane have been coughed up, the child is chloroformed and tracheotomy performed with the intubation-tube *in situ*. The advantages are: one gains much time and need not operate (tracheotomy) in a great hurry, and, the veins being no longer dilated to their maximum size, there is less danger of wound-

ing these and causing considerable hæmorrhage.

Barbier and Lobligeois¹² have decided that, in severe epidemics of diphtheria, ordinary doses of antitoxin seem to have but little effect. The disease is either not benefited or temporary relief follows the injection, with a recurrence of symptoms later. In the recent epidemic at the Trousseau Hospital relapses were frequent, although large initial injections of antidiphtheritic serum were given and repeated often. Of 325 cases, membranes persisted over three days after the injection in 50 patients; in a few cases they persisted until the twelfth day. Injections of from 10 to 40 cubic centimeters were given on admission, and repeated upon the second or third day. In 15 cases new membranes formed during the week following the disappearance of the first membranes, even though repeated doses of antitoxin had been injected.

J. P. Crozer Griffith¹³ believes it an error to put sole dependence on any one line of treatment, and invites consideration of some of the hygienic and medicinal methods upon which we can depend as an aid to diphtheria antitoxin.

The germs of the disease can often be found in the throat of a healthy nurse caring for a case of diphtheria. For their own safety the most careful supervision must be kept over both the throats and noses of all members of the family, and the throats of those unavoidably exposed frequently gargled with antiseptic solutions.

The nose should receive treatment in

¹² Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris, June 20, 1901.

¹³ St. Louis Med. and Surg. Jour., June, 1901.

every case. The solutions may be applied by atomizer, though the syringe is more thorough. The solutions used should be those which check bacterial growth, or act as cleansers only, rather than those distinctly bactericidal, the latter being too powerful to be well borne.

In pharyngeal diphtheria solutions may be applied to the pharynx by the syringe, a swab, or a brush. For this purpose a solution of hydrogen peroxide in full strength or slightly diluted, and immediately followed with Loeffler's solution on a swab and held upon the affected parts for a few seconds is favored.

In laryngeal diphtheria the local treatment must be largely by inhalation, and the most useful remedy is steam. It is very important that *enough* vapor be generated. Either the room must be kept full of vapor by plunging red-hot iron, hot bricks, etc., into tubs of shallow water or the child must be surrounded by a croup-tent and the air within it kept moist by a steam-atomizer or a croup-kettle. Home-made croup-tents can be made by tying a broom-stick upright to each corner of the crib, connecting the tops by cord, and throwing blankets over the frame-work thus made.

Large doses of alcohol are frequently needed.

FRACTURES.

Diagnosis.—The conclusion at which H. H. Clutton¹⁴ arrives as to the advantage of the x-rays in the diagnosis and treatment of fracture is this: for the routine examination of the more common and uncomplicated fractures there is little to be gained from this method; but for exceptional cases of difficulty it is of paramount importance,

for it saves the patient an infinite amount of pain, worry, and anxiety, and enables the surgeon to arrive at a definite diagnosis without too much manipulation.

The disadvantages arise chiefly from the fact that it is, after all, only a shadow of the deformity that is seen, and the shadow may be a gross exaggeration of the original deformity. This may be exemplified by what one sees of himself in walking along the pavement under the street-lamps on a dark night: a man of ordinary height may appear to be of a more or less gigantic stature according to the distance he is standing from the lamp.

It is desirable to obtain assistance from the x-ray by the systematic examination of fractures both before and after treatment. In every case of action for damages it would be invaluable.

C. A. Morton¹⁵ states that, although one must conclude that in the great majority of cases of fracture-dislocation of the spine the cord is hopelessly crushed at the moment of the accident, yet in a few cases this may not be so, and it is therefore most important to determine, if possible by clinical signs, if this hopeless complete transverse crush has occurred. The fact that may aid is that in this condition of complete transverse crush the deep reflexes are lost. If the deep reflexes are present, there has not been a complete transverse crush.

The opinions of most surgeons at the present time seem to be that the chance of benefit from operation in fracture-dislocation of the spine produced in the usual way by indirect violence is so small that the operation is really hardly worth undertaking. The condition

¹⁴ Practitioner, Aug., 1901.

¹⁵ Clinical Jour., Oct. 2, 1901.

without operation is almost hopeless, yet the chance of doing good is so remote one can hardly advise it. One of those rare cases of fracture-dislocation in the upper dorsal region, with lesion of the spinal cord ending in recovery, may be personally recorded, for, with the exception of the still exaggerated knee-jerks, the patient has recovered.

The tendency to death in these cases is usually from paralysis of the intercostals.

Walter Lathrop¹⁶ states that if symptoms of concussion persist for several days, with no sign of any improvement, it is strongly indicative of injury to the brain proper: perhaps a hemorrhage or a fracture of the inner plate.

Fractures of the vault differ from those of any other locality; they are usually caused by direct violence, and the fracture, if fissured, may extend to a considerable distance from the point of direct injury.

Usually the inner table is broken over a greater area than the outer, and in apparently slight fracture the dura may be torn by the injury to the inner table. Depression of the bone is usually due to a hard, quick blow concentrated over a small area, or by a fall on some projection. If the force be very severe or crushing, the bones may be deeply imbedded in the brain. In these cases the inner table is usually greatly comminuted, although the dura may show great resisting power. Should the dura not be torn in depressed fracture, one sometimes has a subdural hemorrhage, and later compression from clot, if overlooked; but, after the loose bone has been removed, accumulation beneath the membrane will cause bulging and exaggerated elasticity. Fractures of the anterior part of the cranium frequently involve the orbit, while injuries

to the base are caused by fracture of the middle, anterior, and posterior fossa or radiate from the vault.

In all injuries of the skull damage to the brain is of first importance, either manifested by hemiplegia, loss of special senses, complete coma, or convulsions. While immediate damage may be caused by pressure of bony fragments, later pressure may arise from an injured vessel whose leakage will be manifested by some of the symptoms mentioned above. The question as to which is the most dangerous—pressure from depressed bone or that from a bleeding vessel—is answered by saying that hemorrhage is the most dangerous. Where the scalp is torn, examination and diagnosis of fracture, if fissured or depressed, is easy; but in cases of head-injury where the scalp is intact, personal custom is always to make a free incision under strict asepsis, and expose the cranium, when the fracture can be seen if present. One may examine the skull through the incision and find nothing, yet the patient will show signs of brain-injury. In these cases it is best to wait a few hours, and endeavor to restore consciousness by quiet, ice, and mild stimulation. Should no chance occur after some hours and symptoms gradually increase in gravity, one should at once trephine and endeavor to find the cause, and remove it if possible.

In fractures of the skull Tuffier¹⁷ considers lumbar puncture as of diagnostic and prognostic value. In one case a young man was run over by an automobile. For a day or two he was cared for at a hospital, then discharged. In three days he returned with a violent

¹⁶ *Annals of Surg.*, Sept., 1901.

¹⁷ *Bull. et Mém. de la Soc. de Chir.*, July 23, 1901.

headache and dullness of mind, these being shortly followed by epileptiform attacks.

Lumbar puncture showed the cerebro-spinal fluid to have a reddish tinge. The admixture of blood could not have been due to the needle-wound. A tapping several hours later gave a clear fluid with a little red sediment.

By this resource, the possibility of traumatic hysteria could be readily excluded. Also lumbar puncture not only enables one to predicate the presence or absence of a fracture of the skull, but also to form some idea of the extent of the mischief by the quantity of admixed blood.

Several diagnostic punctures should be made at the same time, because the needle might encounter a vein.

Complications.—Gallois and Piollet¹⁸ note 11 cases, 1 original, the others previously recorded, of laceration of one or more of the large blood-vessels at the root of the neck, produced in association with simple fracture of the clavicle. In 2 the internal jugular vein was injured; the subclavian vein was involved in 6 cases, in 4 by itself, in the remaining 2 together with the subclavian artery; this artery was the only vessel wounded in 3 cases. The usual result of neck-injury is a large hæmatoma after wound of a large vein alone, and traumatic aneurism after injury to a large artery. Of the 11 cases, 8 were fatal.

Prognosis.—C. A. Morton¹⁹ remarks that the prognosis in cases of fracture-dislocation of the spine varies greatly in the different regions. For instance, in a crush of the cord above the fourth cervical vertebra death is nearly always instantaneous. That the patient may survive some hours is shown by two recorded cases. There is also a very re-

markable case on record in which, after injury to the cord above the origin of the phrenic nerves, life was prolonged for three and a half hours after natural respiration had ceased by the use of artificial respiration.

There are some cases on record where a person has lived for months after a fracture of the odontoid process in which immediate crushing of the cord did not take place.

In injury to the cord from fracture-dislocation in the lower cervical and upper dorsal region the patient seldom lives more than a week or two. Respiratory troubles already referred to usually prove fatal. However, a case has been personally seen of recovery from fracture-dislocation in the upper dorsal spine, with complete paraplegia and anæsthesia in the lower part of the body, and several such cases at this level, and even higher, have been recorded.

In the lower dorsal region, although patients may live some months, they usually die from cystitis, and perhaps pyelonephritis, and no doubt the end is hastened to some extent by the presence of the large and intractable bed-sores which may form. More patients have recovered from injury in this region than in the upper dorsal and lower cervical.

In injury to the cauda equina alone prognosis is distinctly hopeful. Many such cases recover. The injury is one rather of the peripheral nerves than of the central nervous system. Although a completely crushed cord cannot repair, yet nerve-roots can. The divided first two lumbar roots have been successfully sutured in man.

¹⁸ *Rev. de Chir.*, July and Aug., 1901.

¹⁹ *Practitioner*, Sept., 1901.

A most important point in connection with the prognosis after injury to the cord in fracture-dislocation of the spine is the condition of the deep reflexes in the lower limbs. If the knee-jerks are lost, there is probably a complete transverse crush of the cord, and this cannot be repaired; if they are present, one may hope that the cord has escaped so serious an injury.

C. H. Bond²⁰ notes that the treatment of fractures in the insane is surprisingly uniformly successful. This is probably to be explained by the fact that, being in an asylum, the patient is under constant and complete control, and the fracture receives practically immediate treatment. It is also happily the case that if an acutely maniacal patient sustains a fracture his excitement often considerably abates; at any rate, it is rarely necessary to use restraint other than the usual means to keep the fragments in position.

Treatment.—A prolonged experience of the use of the combined methods of massage, early movements, and rational posture in the treatment of ordinary fractures coming under notice almost daily in hospital work confirms W. H. Bennett²¹ in the favorable estimate formed by him as reported in the *Lancet* of 1897, and leads to the following conclusions:—

1. When managed with ordinary discretion and with average dexterity the result of the method is undoubtedly advantageous, inasmuch as the time elapsing before the patient is able to resume his ordinary vocation is diminished by at least one-third, partly by the increased rapidity of union which ensues and to a great extent by the avoidance of the waste of time which occurs in correcting the stiffness and pain which so often follow upon the discontinuance of

splints in the majority of cases treated by means of the classical method of prolonged splinting, etc.

2. The advantages resulting from early passive movements—an essential precursor of which is massage—are especially noteworthy. Early passive movement is followed by a corresponding early return to the ordinary vocation of the patient.

3. The benefit of the method is remarkably demonstrated in fractures in which the chances of union are practically *nil*,—*e.g.*, intracapsular fracture of the neck of the thigh-bone,—the indications being to obtain the best use in the damaged limb by insuring free movement and by preventing the wasting of the muscles concerned; in such cases massage and passive movements are indicated at once.

4. The dangers of thrombosis and embolism, feared by some surgeons, do not exist more than in fractures treated by prolonged splinting. Cases of embolism may have occurred in the course of treatment upon the lines under consideration, but the writer, whose experience of the method is probably larger than that of any other surgeon in this country, has met with no such case, although he has seen three instances of embolism (one fatal) in fractures managed by prolonged splinting. Thrombosis and embolism will from time to time occur in fractures however treated: a fact of which any surgeon of large experience must be painfully aware.

5. The method is not suited to those who lack discretion or who are defective in dexterity: a remark which applies with equal force to the majority of surgical methods; to such the classical

²⁰ *Practitioner*, Sept., 1901.

²¹ *Ibid.*, Aug., 1901.

treatment by prolonged splinting, whatever its disadvantages may be, is better adapted.

6. The principal disabilities attaching to the union of fractures in faulty positions, unless the displacement be gross or of the rotatory kind, are avoidable by the use of massage and early movements, by which adhesions around the fracture are avoided.

7. The method is not to be regarded as a substitute for treatment by splints, on the one hand, or by operative measures, on the other, but should be used as a rational adjunct to each.

Walter Lathrop²² says the general treatment of fracture of the skull—whether compound, depressed, or comminuted—should be by operation. In all simple fractures where the slightest indication of intracranial pressure of hæmorrhage is present one should operate. Even simple fractures followed by symptoms need watching and especial care given to the general system. The prognosis in fractured skull is to be guarded, and to be guided by subsequent developments. A subnormal temperature followed by a rapid rise is a bad indication. Coma; paralysis; deep, irregular breathing; and dilatation of the pupil are nearly always of fatal significance. A temperature at or above normal, rising one or two degrees, with regular respiration, and full or slightly accelerated pulse are usually favorable.

R. H. Harte²³ thinks that in the treatment of fractures of the vault of the skull, especially from an operative point of view, the surgeon should resort to every means in his power to restore the continuity of the skull, even if no signs of compression appear. The treatment of a simple fracture of the vertex, so long as no operation to relieve depression is called for, should be of the

simplest possible character. When depression does exist, even though the external parts are not injured, the treatment should at once become operative. The consensus of opinion of the more advanced surgeons of to-day is that it is not only justifiable, but the best practice, to cut down and elevate the depressed fragment of bone. It is even advisable in doubtful cases to incise the scalp over the questionable point and be positive whether or not a depression exists.

In dealing with compound injuries the existence of an open wound makes the diagnosis easier. Here it is imperative, aside from the relief of points of pressure, to remove all loose splinters and spicules of bone which are liable to wound or irritate the dura or cortex, and to get rid of all tissue, soft or bony, whose vascular supply is such as to make its nutrition doubtful. The wound in many cases may be closed with the view of procuring immediate union; but if there is a disposition to bleed, either from the dura or diploë, it is much wiser to pack the wound with gauze and depend upon closing it later. If the wound be infected at the time of operation, a drainage-tube may be inserted; but it is rarely necessary to carry this tube beneath the edge of the bones, carrying it out of the most dependent part of the scalp being all that is necessary. Early and frequent dressing of the wound is imperative, especially in septic cases.

Stellate or punctured fractures are invariably depressed, with ragged, irregular edges, and call for the use of the trephine or the rongeur forceps, until the edges are smooth, and all

²² *Annals of Surg.*, Sept., 1901.

²³ *Ibid.*, Oct., 1901.

sources of irritation to the dura or cortex are removed.

In fractures of the clavicle C. S. Cole²⁴ states that the use of a part of Dr. Taylor's spinal apparatus as a clavicle-splint directed personal attention to the desirability of a splint specially designed for fractures of the clavicle. After two years' trial and use of one below described its use can be confidently commended in the many cases which do not demand operative interference. Even in them it will prove a valuable adjunct in the subsequent care of the case. It consists of two intraclavicular pads, specially designed to fit that space and support the clavicle, joined by two steel bands so arranged as to be lengthened or shortened as the case may require. It is, in effect, the adjustment of a false clavicle. Their fixation to a pad over either scapula (these pads being united by an adjustable steel strip), by bands, passing over and under the shoulders, supports the broken and sound bones, and pushes the shoulder backward. The thumb-screws on the pads enable the surgeon to change the direction of the support as the individual case requires. The comparative freedom of both arms (although the arm of the injured side should be carried in a sling) furnishes a *desideratum* which no previous dressing has provided.

The details of the treatment are exceedingly simple. The clavicle crutch is properly and securely adjusted. The arm of the affected side is put in a sling, and the patient is instructed not to expose himself to the possibility of fresh traumatism. Readjustment may be necessary for a few days, consisting, for the most part, of a simple tightening of the straps which pass over and under the shoulders. The period of treatment

varies according to age. In young children three or four weeks will suffice, while in adults five or six weeks will be found necessary. Some form of extra force may be requisite at the outset in order to bring the bones into line. For example, placing the knee between the shoulders and drawing firmly backward will often overcome a considerable displacement of the broken fragments. Again, traction outward and upward of the shoulder on the affected side will frequently suffice to give good coaptation. In certain cases pressure upon the bone itself may be necessary to bring the parts into position. The axillary fold may in certain cases need protection by cotton or otherwise on account of the pressure of the strap.

The splints cannot effect coaptation in a case in which one is unable to reduce by his own muscular efforts. There are certain cases of unusual fracture and of considerable deformity which can only be relieved by an operation.

In the case of children the parents must be cautioned to keep a close watch over the injured parts, as well as to observe and report any displacement of the apparatus. One cannot hope to obtain perfect results in all cases; but one can get good results and with less inconvenience to patients by means of the simple apparatus herein described than by any other means at present known.

In discussing the surgical treatment of lacerations of large blood-vessels in cases of simple fracture of the clavicle Gallois and Piollet²⁵ deal, in the first place, with simple venous laceration.

²⁴ *Medicine*, Aug., 1901.

²⁵ *Rev. de Chir.*, July and Aug., 1901.

The danger in exposing the wounded vein consists in the probability of the aspiration of air into the circulation. As both the subclavian and the internal jugular veins are usually wounded at the same situations, it is thought that the venous wounds may be exposed without any large and dissecting operation, and secured either by forcipressure or ligatures. In a case of wounded subclavian artery in which operation is indicated, the apparently desperate measure of first tying the proximal portion of the wounded vessel and then extirpating the sac is preferred. In such an operation it would be necessary to make free exposure of the seat of injury and to remove the inner fragment of the broken clavicle, or even the whole bone. The same treatment is recommended for arterio-venous aneurism in case the vascular tumor is increasing rapidly in size, threatening rupture into the pleura or mediastinum and suppuration of the sac be observed.

H. L. Barnard²⁶ states that Hodgen's splint is the best for all simple fractures of the shaft of the femur; indeed, it is indispensable for fractures of the upper and lower third. In fractures in the upper third the limb must be abducted and flexed until it is in line with the upper fragment. The tendency of the latter to roll outward must be corrected by a pad or sand-bag below the great trochanter, and the eversion of the foot must be overcome by suspending the limb more from its outer side.

In fractures of the lower third of the femur the knee must be well flexed, otherwise the upper end of the lower fragment, tilted back by the gastrocnemius, will press upon the popliteal vessels. Twice this has been personally seen to produce gangrene when the limb was extended on a Liston long splint

and the toes had been covered by bandages.

Long straight splints, extending a greater or less distance up the body, may be useful for delirious patients. They are uncomfortable, and give bad results in simple cases.

Extension with short splints applied to the thigh and a fracture-board beneath the mattress will give good results in fractures of the middle of the thigh.

The double-inclined plane is suitable for compound cases and such as do not require or cannot have traction applied.

After six or seven weeks the patient should be got up in plaster, if his femur has united, and be educated to use crutches. He should wear the plaster three weeks or a month, and then accustom himself to place his foot on the ground and bear his weight upon it. The plaster should include the pelvis and hip if the fracture is anywhere above the lower third of the thigh.

Children under ten years of age should be suspended by both legs flexed to a right angle at the hip. The Gallow's splint is a convenient means of doing this in infants. The fractures of the femur in children are ready for plaster in from three weeks to a month.

Plaster of Paris is, in the opinion of H. P. Coile,²⁷ to be given preference in all ordinary cases where the fracture occurs at the middle of the shaft of the femur or below. Neither is its use to be restricted to simple fractures, but with proper precaution and management may be used with safety and efficiency in the treatment of compound and comminuted fractures.

The patient should be placed on a

²⁶ Practitioner, Oct., 1901.

²⁷ Charlotte Med. Jour., Oct., 1901.

table and the limb thoroughly scrubbed with soap and water and afterward rubbed with alcohol. If an injury be compound or compound and comminuted, the injured soft parts are to be thoroughly cleansed and treated with a 1 to 3000 solution of bichloride of mercury, detached fragments of bone having been previously removed. Bone whose periosteum is not detached may be allowed to remain. In case the fracture is caused by a gunshot wound, it is necessary, after giving the anæsthetic, to cut freely down to the bone and remove the bullet or shot and other extraneous substances if present in the limb. In this instance the suturing and ligaturing of the fragments may in some cases be advantageous. The limb thus prepared should be oiled with sterilized oil and carefully enveloped from the toes to the hip with absorbent cotton, taking care to have an abundant amount of cotton smoothly applied and giving especial attention to the protection of bony prominences; then snugly apply over all a dry gauze bandage. The plaster of Paris is next applied, beginning at the toes and ascending the limb in the usual way, while assistants make extension and counter-extension. The surgeon having placed the fragments in perfect apposition. The extension must be kept up until the plaster becomes firm.

As the case progresses there will be muscular atrophy, and the dressing will become too loose. This is to be obviated by sawing out a narrow strip of the plaster casing from the upper end to the ankle and drawing the edges of the cast together, where they are securely fixed by strips of strong adhesive plaster.

According to H. L. Barnard,²⁸ the treatment of fractured patellæ by wires, hooks, and pins introduced subcutane-

ously possesses all the dangers and none of the advantages of suture by open incision.

When it has been decided to treat a fractured patella without suture, the first thing to be done is to cause absorption of the effusion into the knee-joint. This is best limited and removed by the light application of an elastic bandage for a week or so. The leg is meanwhile fixed upon a back splint reaching well up the thigh and elevated upon an inclined plane, so as to relax the quadriceps muscle.

Massage has been recommended for this purpose, but it possesses no advantages over the above method. When very distended, the joint may be aspirated. When the effusion has been absorbed, the fragments should be approximated. The above position relaxes the quadriceps, and the fragments can with careful bandaging be brought into contact. A back splint or a plaster-of-Paris gutter-splint is applied to the back of the leg. The bandage is applied from the foot to the knee in the usual way. Opposite the knee the turns are obliquely arranged so as to draw the upper fragment down and the lower fragment up, so that they are approximated.

It is well to commence massage and passive movement in the second or third week according to the teaching of Lucas-Championnière and in this country of Bennett. The upper fragment tends to become anchored to the front of the femur by adhesions and by contraction of the lateral patellar expansions (P. Bruns). This is the great obstacle to flexion afterward. When the bandage is removed, the patella should then be moved about on the condyles of

²⁸ Practitioner, Oct., 1901.

the femur to prevent such adhesions, and, if the upper fragment is drawn down and held firmly, the knee-joint may be gently flexed by raising the knee from the splint.

The quadriceps may also be massaged daily to prevent atrophy. In a month or six weeks the patient may get up on crutches, with the knee incased in plaster or in a poroplastic splint, which prevents sudden flexion, and for at least three months he should wear an apparatus to prevent excessive flexion should he chance to fall.

SMALL-POX.

Diagnosis.—In a leading article²⁹ it is stated that the specific eruption of variola is often preceded and in rare cases accompanied by an hæmorrhagic or erythematous eruption which is generally spoken of as a rash. This symptom is very confusing, and has doubtless led to many grave errors. These rashes are very different from the small-pox eruptions, and may easily suggest a diagnosis which may prevent the recognition of the disease when its true characters are known.

The period of invasion in small-pox—marked by fever, chills, and vomiting—commonly covers three or four days. The rash may appear early or late in this period. Osler says that it is more frequent in some epidemics, and it occurs in from 10 to 16 per cent. of cases.

H. Roger and Emile Weil have studied the rash in 978 cases, and have determined that the number of cases with initial rash bore some relation to the severity of the disease. Their figures for the total percentage of those having a rash is nearly the same as Osler's: 18.4 per cent. The cases of varioloid gave the smallest number, 12.8

per cent.; the discrete and confluent cases, 21 per cent.; the confluent, 20.7 per cent.; the hæmorrhagic, 47.5 per cent. Of the 40 cases of hæmorrhagic small-pox, all died; and, of these, 19 had initial rashes.

In speaking of the form of the rash Osler says two types can be distinguished,—a diffuse scarlatinal and a macular form,—either of which may be associated with petechiæ. The scarlatinal rash may come out on the second day and be as diffuse and vivid as a true scarlatina. The macular form may be identical with that of measles.

Roger and Weil distinguish six forms of rash: erythematous, urticarial, morbilliform, scarlatiniform, purpuric, and astacoïde. The erythema occurs in plaques of a uniform-red color, and disappears upon pressure. The urticarial form occurs in white plaques, reddened at the edges and slightly raised, which generally itch. More frequent than the two preceding is a macular form of erythema: the spots slightly elevated, with a velvety feel, the reddened areas separated by healthy skin. This form exactly resembles measles. The scarlatiniform rash exactly resembles that of scarlet fever. The skin in the affected region is a dark red, which disappears only in part under pressure. The purpuric rash is identical with that of ordinary purpura.

The astacoïde, or lobster-like, rash is identical with the hæmorrhagic form of small-pox. It is found in cases which are apparently benign, and in those in which the early symptoms are severe. Its appearance is a certain indication of a fatal termination. Unlike the other rashes, it is general, excepting the face. It is not a generalized purpura, but has

²⁹ *Medicine*, Oct., 1901.

a uniform tint: a diffuse hæmorrhagic suffusion.

These eruptions may be associated in the same patient. In the 171 cases of Roger and Weil 146 had a single eruption. In 25 other cases the eruptions were associated, in all giving 51, or 197 rashes in 171 cases.

Herman Spalding³⁰ remarks that an absolute diagnosis of small-pox cannot be made before the eruptive stage, except in the hæmorrhagic form. In all these mild cases there is a general conformity to the history and course of the typical case of small-pox. There is the prodromal symptom, with the subsidence of fever when the eruption appeared. But chicken-pox is sometimes preceded by prodromal symptoms, and chicken-pox attacks adults, and the prodromal symptoms in small-pox are sometimes irregular and slight; so that one is compelled in some cases to make the diagnosis on the character of the eruption alone, as presented to the eye. The diagnosis can be made, for there is a difference in the appearance to the eye and the clinical course of the development of the skin-lesion. The small-pox lesion has a deeper origin than chicken-pox. The papule rests on the cutis vera, and by inflammatory extension this tissue is implicated. Chicken-pox lesions have only the outer layer of the skin for a covering. This covering is fragile, easily broken, and is broken from the first to the third day of its growth. The vesicles or pustules of chicken-pox, no matter how robust, will not resist accidental violence or natural decay more than four days, except on the hands and wrists for an adult negro, where the covering of the pustule is so thick as to resemble or merge into the life-history of small-pox lesions. The external layer of skin in an adult negro

is thick, and the eruption of varicella here looks and feels like the papule of variola, but an examination of the lesion on other parts of the body will aid in determining the nature of the disease. Measles is a papular disease, and the first day of the eruption is often mistaken for variola. In measles the fever is highest on the day of the eruption, while in small-pox this is a time when the temperature drops to the normal usually.

In making a diagnosis of variola there are some prodromal symptoms in the mildest cases, if the physician is successful in getting the truth out of the patient; when the eruption appears the patient will always feel better, unless there is present some intercurrent disease, and the fever will subside as the eruption appears. One should look for the early appearance of the eruption on the vascular parts: on the face, in the throat, on the wrists and hands, on the foreskin and glans penis. If a papule is found on the ears, it will help in the diagnosis. Too much dependence should not be placed on finding umbilications of the vesicles in the mild cases, as it is often absent.

F. Montizambert³¹ states that the extreme mildness of the present disease has rendered it unusually difficult to handle, control, and stamp out.

Severe cases of small-pox are, as a rule, too ill to leave their bed, and are eager to obtain medical attendance. This leads to notification, isolation, disinfection, and the vaccination of those who have been exposed to the infection.

But this type offers more difficulty to the Public Health authorities. There is, as a rule, but little initial fever, a very

³⁰ Jour. Amer. Med. Assoc., Aug. 3, 1901.

³¹ Brit. Med. Jour., May 11, 1901.

sparse discrete eruption, and no secondary fever. The patient is not usually confined to bed, or even to the house, and no medical man is called in. In the country parts it is very generally regarded and spoken of as a chicken-pox or German measles. In many of the lumber camps it goes by the name "cedar itch." Those affected by it go to their work or their business, travel in public conveyances, go from one part of the country to another, not only in the period of incubation, but often also in the early period of the eruption, and thus spread the disease generously and widely.

That this disease is small-pox is questioned by many. The following facts, however, in connection with it give a reasonable assurance that it is small-pox, and not chicken-pox. It attacks adults quite as often as, or indeed more often than, children. It attacks the unvaccinated or those who have not been vaccinated for some time. It does not attack those who have been recently successfully vaccinated. Every here and there a susceptible person develops a severe confluent or even fatal case.

Etiology.—An editorial³² states that the recent observations of Roger constitute a valuable addition to our knowledge of the placental transmission of disease to the foetus. A series of cases in 11 pregnant women was observed in his small-pox service at Aubervilliers, all of whom gave birth to children who appeared to be absolutely well, but who all presented marked subnormal temperature: in one instance 28° C., in another 30° C., and in another 31° C. Seven of the children shortly developed marked manifestations of small-pox, the symptoms appearing in a typical manner, beginning with an elevation of temperature, followed by the characteristic

cutaneous eruption; 3 of the remaining 4 showed intense infection, the only symptoms being jaundice and subnormal temperature, with death four, six, and eleven days subsequent to birth. One child developed a scarlatiniform eruption, and only 1 of the eleven survived, the others dying in from two to three days after the development of the eruption. Next to syphilis the exanthemata are most prone to affect the foetus *in utero*. The association of the disease with the pregnant condition reacts unfavorably upon the mother. Maternal death is not infrequent under these circumstances, and in every instance in which a fatal termination does not supervene the mother passes through a most critical illness.

Donald B. Pritchard³³ had an epidemic in charge in which there were 1758 cases of small-pox. There was one effect that was very marked, namely: a great many women in the first few months of pregnancy aborted. One foetus was in about the third month of its development, and had quite a number of well-marked vesicles. One woman in confinement at full term had been a victim of small-pox for about ten days, and the child was literally covered with small vesicles. The skin was involved to such an extent that it was hardly thought that it could live. The vesicles all disappeared without becoming pustular, and the child made a smooth recovery.

Prophylaxis.—In a recent epidemic of 450 cases J. W. Preston³⁴ in touching the efficacy of vaccination, can recall but 1 instance of the possessor of a well-pitted scar developing the disease, al-

³² Phila. Med. Jour., Sept. 7, 1901.

³³ St. Paul Med. Jour., Oct., 1901.

³⁴ Va. Med. Semimonthly, Sept. 13, 1901.

though a great number were exposed. At Maybeury, a man, wife, and three boarders were equally exposed; all except the husband and one boarder had been successfully vaccinated. These two latter promptly developed clearly-marked cases of the disease, while the remaining three were quarantined in the same house, and were almost constantly together in the same room for a period of three weeks, and failed to develop it. Could every individual be vaccinated, and this repeated at proper intervals, small-pox could be placed in the same category as the mild exanthemata.

Donald B. Pritchard³⁵ has proved that vaccination protects against small-pox. Of 1758 cases of which he has record, but 17 showed evidence of having at any time been successfully vaccinated. Of the 17 referred to, but 3 had been recently vaccinated, and the disease was so modified in these that the diagnosis was made very difficult. Two of the cases had but one well-marked small-pox vesicle, the third about a dozen. The other 14 had been vaccinated at periods varying from ten to over sixty years previously.

There were 152 houses in which there was only 1 case of small-pox, and in each house that case occurred in the only unvaccinated member of the family. There were hundreds of houses in which every unvaccinated member of the family contracted the disease, and all the vaccinated, irrespective of how old the vaccination was, escaped. It is true that there were a few, a very few, families in which some of the unvaccinated escaped. The disease respected neither the old nor the young, the line being drawn, and that sharply, between the vaccinated and the unvaccinated.

G. A. Kennedy³⁶ notes the recent outbreak of the disease in the Northwest

Territory: an outbreak which was widespread. Dr. Patterson, Quarantine Officer for the Dominion Government, is satisfied that there had been 1500 cases. The greatest number of cases occurred among the French half-breeds, who had never been vaccinated. Indians on reserves did not suffer to any great extent, as annual vaccination is the rule. Not one case was seen or heard of among Galicians, Doukhobors, or Roumanians, which is due to the fact that compulsory vaccination was the rule in youth, and then they had been revaccinated on their recent passage across the Atlantic and at Halifax.

An editorial³⁷ notes that though mild scarlet fever and mild small-pox resemble each other in spreading the disease by means of unrecognized cases, and in the consequent comparative futility of hospital isolation as a preventive measure, they differ in the one essential particular that against small-pox the individual can protect himself by vaccination, while scarlet fever has no similar shield. If there were no exceptions to the very trivial character of the variola in the present American outbreak, the question of risking attack might conceivably be open to discussion; but seeing that confluent and hæmorrhagic small-pox may and does result from infection derived from the mildest cases, the only safety is to be found in vaccination.

Louis Leroy³⁸ is convinced that glycerinated lymph is by far the best method of inducing the vaccine disease. To obviate the objection that it is viscid, takes a long time to dry, and when ex-

³⁵ St. Paul Med. Jour., Oct., 1901.

³⁶ Dominion Med. Monthly, Sept., 1901.

³⁷ Brit. Med. Jour., Sept. 21, 1901.

³⁸ Jour. Amer. Med. Assoc., Aug. 3, 1901.

posed on the surface is liable to be contaminated by foreign substances, which readily adhere to it, the hypodermic needle may be used, introducing the vaccine underneath the skin. A solid-piston hypodermic syringe is used, and, if a large number of vaccinations are to be performed, the barrel of the needle may be filled with the glycerinated lymph. A short and rather large caliber needle is most satisfactory. The skin is cleansed in the usual way, and a drop of the lymph injected with the concave surface of the needle downward. As a rule, a single drop is sufficient, though a larger quantity is not harmful. The advantages of the intradermic method are claimed to be freedom from contamination, absence of pain (an advantage in young children), and simplicity of application. The number of successful results is greater than where simple scarifying is used.

H. M. Bracken³⁹ says vaccine is frequently spoiled by not being kept in proper temperatures, as it is frequently being shipped in cans which are too hot, and subsequently kept in warm offices. Personally, all vaccine is kept in an ice-box, but not frozen, and good results have been obtained.

Treatment.—If fever is high and pain severe, S. S. Watson⁴⁰ advises tablets of codeine compound with, if needed, *Norwood tr. veratrum viridi*. Saline laxative should be given as indicated. After the appearance of the eruption a daily bath of 1 to 4000 bichloride is of value until the pustular stage; then 1 to 2000 bichloride. When the pustules or vesicles begin to dry, the surface is to be kept well covered with carbolyzed vaselin. For angina, the throat should be kept sprayed with 1 to 4000 bichloride solution, or chlorate-of-potash and carbolic-acid solution.

Louis Leroy⁴¹ says that, upon the outbreak of one or more cases in a locality, a competent physician should be placed in charge and be given as nearly as possible absolute power. The physician in charge should be in communication with the Board of Health, preferably by means of a telephone from the infected district. The strongest possible police co-operation should be obtained, and vigorous legal prosecution should be instituted at once upon the least willful infringement of quarantine regulations.

In order to avoid as much as possible all kinds of reports and rumors, it is a satisfactory plan to make a daily official report to the newspapers, stating the exact condition of affairs as nearly as possible, without exaggerating or belittling any feature of the situation.

The question of treating the cases in their own homes must in many cases be considered seriously. In the finer houses this can frequently be done with some degree of satisfaction.

As soon as the authorities are informed of a suspicious case, it should be isolated completely for a few days, until further development of the symptoms render diagnosis certain. During this time no one but the physician in charge and the nurse should, under any circumstances, be allowed to enter the room.

In large cities it is generally an easy matter to obtain a large building for the organization of a pest-house. In the less densely populated locality, however, tents offer the most convenient and efficient means of isolation. If possible, two large tents and two or three smaller

³⁹ Dominion Med. Jour., Sept., 1901.

⁴⁰ Texas Med. News, Sept., 1901.

⁴¹ Jour. Amer. Med. Assoc., Aug. 3, 1901.

ones should be obtained. The two large ones can be utilized, respectively, for male and female patients. One of the smaller ones as a kitchen and commissary department, another for the physician in charge and his assistants, in which may also be kept the medical stores, and, if possible, above all things, a telephone. The tents should be floored with matched boards or sawdust to a depth of one or two inches, should be provided with good flies, and be well ditched. If possible, they should be upon high, sandy ground, and not within three hundred yards of other residences. If the weather be cold, they can be easily heated by small stoves placed near the center of the tent.

As soon as the patient leaves his house, whether recovered or removed to a hospital, the premises and all articles which have in any way come in contact with him should be disinfected. Everything possible should be burned. All wooden articles, the floor, walls, and ceilings should be thoroughly sponged with a 1 to 1000 solution of bichloride of mercury.

When a patient is ready to leave the hospital, he is made to thoroughly bathe himself and shampoo his hair. He resumes his clothing, which has been sterilized thoroughly. A large dry-goods box may be rendered air-tight by coating the inside with a mixture of equal parts of resin and paraffin, which is melted and poured into all cracks and crevices.

The clothes may be placed in this and sufficient formalin added to moisten them, when the lid will be closed, and they are allowed to remain for twenty-four hours. This has always proved satisfactory and does the clothes no injury.

TONSILLITIS.

Diagnosis.—Dundas Grant⁴² says that occasionally the medical attendant and friends of patients affected with acute tonsillitis are considerably alarmed by the appearance, on the upper and posterior part of the tonsil, of what seems to be a deep excavated ulcer of oval shape, the floor of which is covered with a white, slough-like membrane.

Killian points out that in the newborn child the tonsil consists of three masses of tonsil-tissue, between which are two furrows; the uppermost mass and the furrow next to it are the most persistent; the lower furrow gradually disappears, and the tissue which forms the bulk of the adult's tonsil is covered to a considerable extent by a triangular fold of membrane running downward and backward from the anterior pillar of the fauces.

Killian recommends for the better examination of the tonsil that the head should be turned toward the affected side, the tongue pulled out toward that side, and the opposite angle of the mouth retracted while the patient utters the sound "hay." In this position the tonsil is looked at more nearly from the middle line, so that the furrow and the marginal cushion above and behind it can be readily recognized. It is extremely probable that the furrow has been frequently mistaken for excavating ulcers by others as they have been personally.

Etiology.—Follicular tonsillitis and peritonsillitis are believed by Joseph Meyer⁴³ to be due to the infection of toxins or bacteria, the latter probably made active by what is commonly called a cold, setting the bacteria into action,

⁴² Brit. Med. Jour., Sept. 28, 1901.

⁴³ Brooklyn Med. Jour., Oct., 1901.

upon a field which they before may have occupied, but, through said cold, the field has become a field of less resistance and a most suitable soil for bacterial activity and absorption of toxins. The tonsils may have, as claimed by some, antibactericidal properties, but because of their peculiar conformation they also have, in a high degree, the capacity for storing bacteria and putrefactive matter, either of which may become active, through a cold or of their own accord at any time that conditions are favorable.

Prophylaxis.—W. Freudenthal⁴⁴ says that it is impossible to prevent acute lacunar inflammation by the use of any drug, but it can be done by attention to the climatic factors, which play an important rôle in the etiology of this affection. To prevent acute lacunar amygdalitis one should not bundle up children in clothes, but harden them to changes of temperature. Mucus dropping down into the naso-pharynx and drying acts as a foreign body, and causes an irritation which predisposes to lacunar inflammation. The obvious indication is to treat the naso-pharynx.

Treatment.—Joseph Meyer⁴⁵ thinks that the abortive treatment of follicular tonsillitis and peritonsillitis consists of two things, viz.:—

1. Treatment of the initial stage.
2. Cleansing the lacunæ by syringing them with bichloride solution 1 to 1000.

If the patient is seen early enough and the preceding symptom of a cold are present; a uniform temperature, also rest in bed, with hot beef-tea or milk as a drink, getting up a good sweat, followed by a hot-towel rub-down will often abort or ameliorate an attack of follicular tonsillitis or quinsy by bringing about less favorable condition for bacterial action.

A simple one-fourth- or one-half-ounce syringe of the laryngeal type is personally used for syringing the lacunæ. If the mouths of the lacuna are narrow, one of the lips may be lifted up with a cotton-carrier or blunt curette, stretched slightly, or opened with a small knife, and then the syringe can be introduced with ease. The nozzle of the syringe should be introduced deeply into the lacunæ and the fluid injected; often one will be surprised to see a plug come out of a neighboring lacuna or the fluid injected from a number of lacunæ. The relief often is immediate.

In cases where most of the inflammatory trouble has passed over, but one or two lacunæ are filled with cheesy matter, leaving still a sore sensation, some pain on swallowing, with some swelling of the tonsil, this method is admirably adapted. The syringing must be thoroughly done with a proper syringe, and quite warm bichloride solution (1 to 1000).

According to Samuel Floersheim,⁴⁶ the local application of tincture of iodine in acute tonsillitis is of value. The method of application is simply to saturate a long camel's-hair brush with the tincture of iodine, and rapidly brush over the inflamed area: *i.e.*, tonsils, pharynx, uvula, fauces, etc. Should the patient experience intense burning after two minutes, a gargle of plain, warm water suffices to relieve the condition. If the patient does not experience the burning, the remedy is usually applied a second time, from three to four minutes after the first application. The results have been marvelous. Pa-

⁴⁴ N. Y. Med. Jour., Oct. 26, 1901.

⁴⁵ Brooklyn Med. Jour., Oct., 1901.

⁴⁶ N. Y. Med. Jour., Oct. 5, 1901.

tients who had considerable pain were relieved, and those who could not sleep, eat, or drink were also relieved within five minutes.

In 68 cases of acute catarrhal and follicular amygdalitis treated by this method within the past two years the most gratifying results have been noted. Relief from the distressing symptoms was observed within five minutes after the application of the remedy to the inflamed area in every case observed. The intense redness and swelling also became considerably decreased within five minutes.

When the inflamed area, after twenty-four hours, had shown much improvement with a tendency toward a rapid cure, the application of the tincture of iodine was not repeated. In some of the cases nothing else was done; in

others, the usual throat remedies appropriate to the disease were prescribed.

M. R. Ward⁴⁷ says the treatment of acute lacunar inflammation should be both local and constitutional. The local application of guaiacol is alleged by some to have the power to abort the process. Small pieces of cracked ice or ice-water are decidedly useful in the early stages. The patient should be freely purged with calomel or with effervescent phosphate of sodium. The value of tincture of chloride of iron cannot be overestimated, and it should be given throughout the acute stage. Codeine, salol, and phenacetin relieve the headache and other pains. The tonsils should be removed in the interval of the attacks.

⁴⁷ N. Y. Med. Jour., Oct. 26, 1901.

Cyclopædia of Current Literature.

ABDOMINAL CÆLIOTOMY, TRANSVERSE INCISIONS IN.

For the last eighteen months the abdomen has been opened in many personal gynecological cases by a transverse incision, with a view to securing a more solid cicatrix than was believed could be obtained by a through and through incision. The first incision, which has been now made forty-five times, is made at the upper limit of the pubic hair transversely, following a line parallel to the upper limits of the pubic hair, making it about a centimeter below the base of the hairy triangle. The skin and cellular tissue are cut through until the fascia is reached; the upper border of the wound is then rapidly dissected off the fascia by a few snips of the scissors, and is then held up by a

retractor. The lower border of the wound is also dissected off and drawn down by a retractor, so that the incision becomes elongated, and if proper traction is made on the retractors by the assistant, a rectangular wound can be made sufficiently large to incise the fascia vertically to the extent of five or six centimeters. When incising the fascia it is better to do so over the inner border of one or the other rectus, and, when the belly of the muscle has been freely exposed, its inner border is found and the whole muscular mass pushed aside, thus exposing the fascia underneath without wounding the fibers of the muscle in the slightest. After the peritoneum has been opened, the retractors holding the skin-flaps back can be removed, and ordinary abdominal

retractors can then be employed. Through this transverse incision total hysterectomy has been performed with ease, and most of the ordinary work on the tubes and ovaries has been done through an incision in the fascia not exceeding six centimeters in length. C. G. Cumston (*Amer. Med.*, Oct. 5, 1901).

ADENOIDS IN INFANCY, DIAGNOSIS OF.

The objective symptoms are peculiar facial expression, mouth-breathing, snoring at night and noisy respiration during the day, vocal changes, abnormal and excessive nasal secretions, sneezing and reflex neuroses, chest-deformities, and spinal curvatures. The subjective symptoms are headaches, stuffy feeling in the nose, dryness of mouth and throat (especially in the mornings), sore throat, impairment of the taste, inability to concentrate attention (with more or less stupidity and depression), earaches, deafness, and tinnitus.

Of the symptoms enumerated, mouth-breathing and snoring may exist without adenoids being responsible; and also adenoids may be present without causing any obstructive disturbance in the upper air-tract.

The age of three years and under may be taken as the period of infancy. During a recent examination of 437 infants under three years of age, 45 were found under seven months old who had some nasal obstruction; but in no child under three months was the obstruction due to lymphoid hypertrophy in the naso-pharynx.

The following conditions may cause respiratory obstruction simulating that caused by adenoids in the naso-pharynx of infants under six months:—

1. Lymphatism and lithæmia.
2. Syphilitic or gonorrhœal rhinitis.
3. Congenital atelectasis.
4. Digestive disturbances.
5. Congenital highly arched palate.
6. Very small or occluded nostril or nasal passages.
7. Unusually small post-nasal space, with large Eustachian eminences.
8. Marked anterior projection of the bodies of the cervical vertebræ.
9. Some malformations of the soft palate.
10. Hypertrophy of the tongue.

Some of the conditions enumerated are rare, but all have occurred in personal experience, and should be given consideration in every case where the cause of obstruction is not evident. W. F. Chappell (*Laryngoscope*, Sept., 1901).

ANTHRAX.

Case noted in which there was a large anthrax carbuncle occupying the entire right half of the face, and which had been present for three days. There had been repeated chills and high fever, the general condition was bad, and swallowing was difficult. The patient being a sturdy young man, and under hospital supervision, an immediate operation was not done. An intravenous injection of 5 grammes (75 grains) of a 1-per-cent. solution of collargolum was administered. His condition improved for several hours, and then became worse than it was before. After the second injection the improvement lasted longer, and after the fourth (he received one injection daily) it became normal. No deep necrosis occurred; the board-like induration was entirely absorbed, and fourteen days later only a small superficial scab came away. Anthrax bacilli were repeatedly demonstrated both in the carbuncle and in the patient's blood.

He had no other treatment. Fischer (Münch. med. Wochen., Aug., 1901).

Cedematous and Erysipelatous Anthrax.—The course of erysipelatous anthrax is on lines so nearly parallel with ordinary erysipelas that the differences might easily be overlooked. When a person has been exposed to contagion and is found to have considerable acute swelling of any part, especially of an exposed part of the body, unlike ordinary diseases, and without much pain, distress, or fever, this form of anthrax may be suspected. It may be distinguished from acute emphysematous gangrene and its congeners by the absence of injury, pain, emphysema, much fever, and constitutional disturbance. The only proof, however, is the finding of the bacillus by cultures or physiological tests with blood or serum taken from the body. In a slight case with œdema only it is probable that a few minims of blood taken from this part and injected under the skin of a white mouse would cause death from anthrax. Cultures are not so certain a test for anthrax as physiological experiments, but in doubtful cases they are more to be depended on for determining the kind of bacillus.

The treatment generally adopted in localized anthracic lesions by excision, cautery, or caustics is not suitable for the diffused inflammatory form. In one case which recovered chinisol was given by the mouth (1 grain every three hours), by the lungs (nebulizer, 4 per cent.), and by daily injections into the cellular tissue at several points. When the skin of the eyelids was much swollen and hard, incisions were made to relieve tension and prevent sloughing; afterward chinisol lotion was applied. Perhaps the most promising method of treatment is the intravenous injection of

non-toxic germicides. J. H. Bell (Brit. Med. Jour., July 20, 1901).

BRIGHT'S DISEASE, THE OPHTHALMOSCOPIC DIAGNOSIS OF.

Fatty deposits in the retina, presenting a series of radiary striations around the macula, with more or less accompanying deposit of a similar nature in other parts of the retina, and sometimes with disseminate hæmorrhagic effusions, with reduced and tortuous arteries, are never observed without co-existing renal disease. However, these conditions do not appear until the renal disease is well advanced. Unfortunately, structural changes in the kidney may exist in the gravest form without creating such symptoms as to lead the subject to seek medical advice. Fatty deposit in the retina not assuming the form of radiary striations, which give to the macula a stellate appearance, are common in atheroma, pernicious anæmia, and embolism of the arteria centralis. The hæmorrhagic effusions, with narrowed tortuous arteries, and disseminate fatty deposit, may result from autointoxication, especially of intestinal ptomaines.

The ophthalmoscopic diagnosis, therefore, of Bright's disease, while sometimes of great importance, requires expert judgment, and can never be made until the renal disease has already reached a dangerous stage of advancement. D. S. Reynolds (Louisville Monthly Jour. of Med. and Surg., Oct., 1901).

CEREBRO-SPINAL FEVER, DUST AS A VEHICLE FOR THE GERM OF.

Out of 60 persons in the central prison at Bhagalpur attacked by cerebro-spinal fever, 57 were prisoners en-

gaged in "dusty" occupations. The dusty occupations were brickfield-work, road-sweeping, etc., and also wheat-grinding, rice-husking, etc. The greatest number of cases occurred during the dry hot and dry cold months. When respirators were given to the prisoners engaged in husking rice, not a single case of cerebro-spinal fever occurred among them, whereas in the previous season eight cases were due to working in dust of this kind. Dust, therefore, would appear to be a frequent vehicle for the germ of cerebro-spinal fever. W. J. Buchanan (*Lancet*, Aug. 10, 1901).

CONSTIPATION, HABITUAL.

Treatment.—Excluding a symptomatic habitual constipation caused by displacement of the uterus, cancer of the rectum, neoplasms or adhesions of other abdominal or pelvic organs, tumor of the prostate, lead poisoning, ulcer of the stomach, etc., which requires either gynecological, surgical, or special medicinal means to overcome, the following therapeutic measures are suggested to combat habitual constipation: First, educational means; second, mechanical; third, hydrotherapeutic; fourth, electrical; fifth, dietetic; sixth, medicinal.

When one is first called to see a patient suffering from habitual constipation who has not had a free movement of the bowels for some time, there is but one thing to do: to produce a thorough evacuation of the bowels. Nothing has rendered more valuable service in such cases than the administration of calomel in fractional doses, to be prescribed in tablet triturates as follows:—

For children from one to four years, $\frac{1}{20}$ to $\frac{1}{10}$ grain, 10 to 20 in number; for children from five to ten years, $\frac{1}{10}$

to $\frac{1}{5}$ grain, 10 to 20 in number; for children from eleven to fifteen years, $\frac{1}{5}$ to $\frac{1}{3}$ grain, 10 to 20 in number; for adults, from $\frac{1}{3}$ to $\frac{1}{2}$ grain, 10 to 20 in number.

Sig.: One every half-hour or hour, dissolved in or taken with 1 ounce of water until two free movements of the bowels have taken place.

The next day the most practical combination of educational, mechanical, hydrotherapeutic, electrical, dietetic, and mechanical measures—according to the age of the patient, his intelligence, circumstances, and environments—should be inaugurated.

The educational means to overcome habitual constipation should be inaugurated as early as possible in life. Children should be taught as soon as they can comprehend that they must go to stool every day once or twice. Every chronically constipated patient should be impressed with the importance of going regularly to the water-closet, if at all possible always at the same time (preferably in the morning before or shortly after breakfast).

Under hygienic treatment of chronic constipation is understood:—

(a) To clean the teeth after each meal with the aid of toothpick, brush, and clean water; (b) to have diseased teeth promptly treated; (c) to take meals at regular times; (d) to take time for meals, to eat slowly, and chew the food well; (e) not to read or do difficult thinking while eating (light, pleasant conversation, on the other hand, is to be recommended); (f) not to eat in workshop or office; (g) not to eat when tired or exhausted from either physical or mental work, but whenever practicable rest in a sitting or recumbent position from half an hour to an hour before the principal meal, either in the

open air or in a well-ventilated room; (h) not to begin to work mentally or physically immediately after eating, but rest, if possible, at least from fifteen to thirty minutes; (i) to use a water-closet which is well aired, well lighted, cool in summer, comfortably warm in winter; (j) to use soft toilet-paper, and, whenever possible, some water to clean the external anal region.

Of mechanical means to overcome chronic constipation, the best are walking and deep breathing in the open air, but never when tired or to the extent of becoming tired; also alternate contraction and relaxation of the diaphragm. All out-door sports, calisthenics, gymnastics, etc., when not done to excess, are most commendable. When going to stool it is wise for chronically constipated people to take the natural knee-chest position. If this position is not practicable, one is to elevate the knees as much as possible while sitting on the ordinary closet, by the aid of a high foot-bench.

Next in importance comes massage as a passive exercise: circular friction and moderate kneading around the umbilicus from right to left, followed by the same movements with somewhat increased vigor along the ascending, transverse, and descending colon. During massage of the abdomen the head should be slightly elevated and the knees drawn up as near to the abdomen as possible, so as to produce a thorough relaxation of all abdominal muscles. While it would be best to always massage the patient in the morning before breakfast, when this is not practicable it can also be done at other times, the only rule being never to massage a patient immediately after he has taken his principal meal. An abdominal massage should not last over ten minutes,

except perhaps when the person has a great deal of adipose tissue.

As practical mechanical means to overcome chronic constipation, the occasional use of a rectal glycerin suppository should be mentioned. The insertion of such a suppository is also to be recommended when the patient, after having had an evacuation, has the feeling of not having had a sufficiently free movement, and still experiences the sensation of fullness in the lower bowels.

Of hydrotherapeutic means to overcome chronic constipation, one has a choice of internal and external measures, and may use them combined. Enemata of hot water should not be used as a routine treatment to overcome chronic constipation. The injection of 1 or 2 ounces of glycerin or about 10 ounces of linseed-oil should alternate with the hot-water injection when enemata are indicated. Water taken internally, hot or cold, half a tumblerful every half-hour, beginning half an hour or an hour after a light breakfast, is a most valuable remedy in chronic cases. Externally, cold-water compresses over the abdomen at bedtime and gentle abdominal douches or either cold or alternately cold and hot water, morning and evening, cool sitz-baths, or simple friction with cold water, often tend to revive the lost muscular action of the small or large intestine, and restore the patient to normal conditions.

Electricity may be applied in some cases with advantage and good results be looked for. Both electrodes may be applied to the abdominal walls or one pole passed into the intestine. For the first method the broad plate electrode can be used, the common button electrode, or the electrical roller. For the use of the electrode in the rectum,

Ewald's flexible tube, constructed by him for that purpose, is perhaps most convenient.

Under dietetic treatment should be understood the use of more liquids, more vegetables, and more fruits. Thus, one recommends all waters taken hot or cold, carbonated or pure; white wine diluted with water, light beers; grape- and other fruit-juices, provided they do not contain any astringents; buttermilk, kefir, weak coffee, broth, bouillon, oyster-soup, and plenty of good butter. Of vegetables, spinach, cauliflower, boiled onions, Brussels sprouts, asparagus, green corn, green pease, string-beans, potatoes, carrots, kohlrabi, turnips, a moderate quantity of cabbage, salads with plenty of good olive-oil and little lemon-juice, cucumbers, and tomatoes; all fruits, both raw and cooked, particularly stewed prunes (morning and night), figs, apples, peaches, pears, grape-fruit, oranges, melons, cherries, grapes, and all kinds of berries without large seeds are to be recommended, also all kinds of fresh and tender meat and poultry. If there is great anorexia, scraped raw beef with a little salt and pepper should be tried, as well as whole-wheat bread, Graham bread, brown bread, rye-bread, all bread preferably at least one day old, toast, oatmeal, hominy, cracked wheat, etc.

The habitually constipated patient should avoid all alcoholic drinks, particularly whisky, clarets, stout, ale, and heavy dark beers; also chocolate, tea, strong coffee, and milk. With some patients, however, milk acts as a laxative, and then it can be allowed. He should avoid thick soups, pease, beans, lentils, rice, sago, pastry, sweets, unripe peaches, berries with big seeds, and nuts. Of meats, he should avoid pork, veal, all kinds of liver (except that of

poultry), game, and smoked, potted, preserved, and dried fish. All kinds of cheese, except the fresh cream-cheese, are injurious to habitually constipated persons; so are hot cakes or biscuits and fresh warm bread.

While many habitually constipated patients may be cured of their infirmity by a combination of educational, dietetic, hygienic, and mechanical means, in some cases the additional administration of some laxatives is indispensable. It seems always prudent never to continue with the same remedy for any length of time, never to use a drug of which the increase of the dose is essential to keep the patient's bowels in good condition.

If the stools are clay-colored and particularly fetid, calomel is the best remedy. A few teaspoonfuls of olive-oil should be tried as a mild laxative. Castor-oil may be given a few times. The various saline purgatives, such as potassium and sodium tartrate, sodium sulphate, and magnesium sulphate, may also be given occasionally. The mineral waters containing these salts, or salts that are similar in their action, may likewise be prescribed and good results obtained. Of the vegetable laxatives, cascara sagrada is one of the best as an occasional remedy in chronic constipation. For children syrup of manna is an unusually good preparation. S. A. Knopf (N. Y. Med. Jour., Oct. 26, 1901).

CUTANEOUS DISEASES. THE NERVOUS FACTOR IN.

An etiological factor which beyond all doubt plays an important part in the causation of skin diseases of one kind or another is disordered function or actual lesion of nerves. The difficulty is to define its sphere of influence. In one or other of these ways the nervous

system is accountable for zona, erythema, pemphigus, scleroderma, and various forms of cutaneous oedema, hæmorrhage, or ulceration. Reflex irritation of the vagus—by the presence in the stomach of shell-fish, strawberries, or other food noxious to the individual—will cause urticaria. A defect of innervation in any part of the skin-surface lessens the power of resistance in the place and opens the way to microbic invasions. This is probably the explanation of many cases of eczema, lichen, and other affections. Or, again, an existing disease may be greatly aggravated by supervening nervous disorder. The affection itself may be trivial,—a simple eczema or pruritus ani,—but the force of the nervous explosions which it causes may transform it into a formidable and intractable disease. Or the nervous disorder may find expression in intense cutaneous irritation, making the patient's life almost unbearable and threatening to destroy his reason without leaving a mark on the skin, except those made by his own nails. In these days of nervous overstrain such neuroses of the skin are very common, and they are among the most distressing cases that a dermatologist can be called upon to treat. Malcolm Morris (*N. Y. Med. Jour.*, Sept. 14, 1901).

DYSMENORRHOEA.

In some cases the static spark is very beneficial and sometimes general faradization or lumbo-abdominal galvanization will suffice to prevent pain at the monthly period; but generally some form of intra-uterine electrical treatment will be found to be necessary. If there be a stenosis or a membranous dysmenorrhœa to deal with, strong negative galvanization is indicated. It will

be better for a beginner to use mild electrolysis in a stenosis before attempting strong currents. If the stenosis be in the form of a cicatricial stricture, mild galvanization is always indicated.

If the whole canal be very small, it will be better to use an instrument that can be passed, act upon the tract throughout its entire length, and at the next sitting use a larger sound, and so on. The canal is enlarged by negative and lessened by positive galvanization. A current-strength of 5 to 20 milliamperes may be used, the former for five or more minutes, the latter for one or two minutes, keeping the electrode gently moving so as to reach every part of the canal. If, for any purpose, the positive pole be used in the neck of the womb or in the urethra, it must be kept in motion to prevent adhering to the surface of the tissues.

After all intra-uterine applications the patient should be allowed to lie down for awhile, and a warm antiseptic douche may be ordered every day, or even twice a day. Such applications should not be made oftener than once per week or ten days. Time must be allowed for the parts to heal before another treatment is given. W. H. Walling (*Amer. Gynec. and Obstet. Jour.*, Aug., 1901).

ENDOCARDITIS, ACUTE.

The conclusions regarding acute endocarditis, which a somewhat lengthy period of observation has led the writer to entertain, are as follow: 1. If the cardiac complications of acute rheumatism receive no special treatment, and the patient is allowed, when the rheumatism has subsided, to return to his usual course of life, he will, in the great majority of cases, become the subject of organic disease. 2. In all cases of acute

and subacute rheumatism, and in the obscure cases of rheumatism peculiar to childhood, it is important to keep a close watch upon the heart, so as to detect the onset of valvulitis in the early stage. 3. If the disease be early detected, and is then judiciously treated, in a large proportion of cases organic mischief will be averted. Richard Caton (*Edinburgh Med. Jour.*, Oct., 1901).

EPILEPSY AND DYSPEPSIA.

There is a class of patients whose epilepsy seems to be directly traceable to gastro-intestinal irritation. When these patients are about to have an attack, the digestive difficulty seems to precipitate the crisis. Then, again, when the digestion is corrected, the crisis seems often to abate.

In infants stomach trouble frequently produces convulsions which resemble epilepsy. These cases usually respond quickly to rational treatment.

Digestive troubles are frequently latent, and it is to be recommended in all cases of epilepsy and suspected stomach disorder that an analysis of the stomach-contents and urine be made. To determine the condition of the patient this should always be done, even if there be a want of subjective symptoms. The examination of the patient is not complete unless the digestive organs are also examined. C. D. Aaron (*Phila. Med. Jour.*, Oct. 5, 1901).

HAY FEVER.

Treatment.—Personally, during the months of June and July past great relief has been found, and, except on the few intolerably hot days, almost complete comfort, from the topical use of adrenalin solution, applied on cotton wad or as spray, in the proportion of 1 to 5000. That is to say, the commercial

solution (1 to 1000), which contains chloretone as a preservative, was diluted with 4 parts of distilled water. Previous to the use of the adrenalin spray the nasal passages should be thoroughly cleansed, at least in the morning on rising, with Dobell's or other mild alkaline detergent solution; and, after the use of adrenalin, an oily spray flavored with wintergreen, thymol, menthol, or whatever is most agreeable or least irritating, or, if all flavors are irritating, plain olive-oil or liquid petrolatum, should be used. This helps to keep the nasal surfaces protected from irritation by dust, which, whether or not it contains the specific noxa, is likely, during the season when the latter is present and the mucous membrane, therefore, has become unduly sensitive, to provoke paroxysms of sneezing and coryza. On the few hot days mentioned, when adrenalin alone failed to control the paroxysms, the infrequent use of cocaine in 1-per-cent. solution to the conjunctiva, and of atropine, $\frac{1}{1000}$ grain p. r. n. internally, was additionally necessary in the city, but at the sea-shore could be dispensed with. S. Solis-Cohen (*Amer. Med.*, Sept. 7, 1901).

HEARING, PROGRESSIVE HARDNESS OF.

Treatment.—In the operation for removal of the incus the patient should be etherized (local anaesthesia by cocaine being both inefficient and toxic, according to personal experience) and the external auditory canal and the membrana sterilized by a solution of mercuric bichloride (1 to 5000) or one of formalin (1 to 1000), or with alcohol. Then the auditory canal and membrana tympani should be illuminated by means of an electric light held on the forehead and run by a small portable storage bat-

tery, made for the purpose of clinical illumination.

When the membrana is intact, as it is in a case of chronic progressive deafness, the initial incision is made with a delicate knife, beginning close behind the short process of the malleus and following closely the periphery backward and downward until reaching a point below the line drawn horizontally through the umbo of the membrana. This cut is followed by little or no bleeding, as a rule. The flap thus made should be pushed inward toward the promontory by means of a probe armed with a small dossil of sterilized cotton. If there is no bleeding, the incus-stapes joint is seen as soon as the flap of the membrana is pushed aside. If there be bleeding, it must be mopped away with sterilized mops on a cotton-holder.

The incus being now in plain sight, it should be gently disarticulated from the stapes by drawing the former outward and downward by means of an incus-hook knife passed behind its long limb. When this is done, the long limb of the incus should be grasped by special forceps and drawn very cautiously downward and outward into the auditory canal and then removed entirely from the ear. When this is accomplished, the operation is finished. The slight bleeding that sometimes occurs in these cases requires no attention. The rest of the conductors of sound are left intact. The meatus should be stopped with sterilized cotton and the ear left alone for twenty-four or even forty-eight hours, unless the cotton in the meatus gets moist with blood or serum. If this occur, the cotton should be removed and dry cotton inserted. There is to be no after-treatment in such cases, as all is accomplished when the incus is removed. As a rule, there

is no reaction in these cases, and the wound in the membrane heals by first intention. Sometimes a slight reaction has occurred, shown by a little pain and some muco-purulent discharge. But this is healed in a few days by simply mopping the ear with sterilized cotton and a solution of formalin (1 to 1000), and such reaction has never had any bad effect upon the result of the removal of the incus in checking the progress of the deafness. The patient is never obliged to remain in his room for more than twenty-four hours. C. H. Burnett (*Phila. Med. Jour.*, Aug. 17, 1901).

HERNIA, THE WORSTED TRUSS IN INGUINAL.

The truss offers to the infant a somewhat greater hope of cure than to the adult. The feeling in Boston is that a truss of worsted is as effective as a more elaborate one, and that if a cure is to result from truss treatment, it is as likely to follow the wearing of this form as that of any other.

The worsted truss has certain definite advantages over other forms of truss. It is very cheap, and when soiled can be changed. The soiled one can be washed, and is then ready for use again. A skein can be washed a number of times without injury. When it loses its elasticity, however, its usefulness is gone. The truss can be worn in the bath. It is less likely to irritate the skin than a spring truss.

Worsted is ordinarily sold in a skein made up of two laps. A lap, or half of a skein, is sufficient for a truss. The method of application is as follows: The child is placed on his back, the half-skein is passed under him and pulled far enough so that the end just reaches the internal ring. The other end is

then passed through the loop of this first end and the hernia is reduced. The bunch of worsted made by the looping of one end through the other is adjusted carefully and firmly over the hernial opening, and the free end then passed under the leg and fastened by a bit of bandage to the part on the back. If the skein is so long that there is a mass of extra worsted in the back where the perineal arm fastens to the horizontal part, a neater and more comfortable truss can be made by rewinding the worsted, making it the proper length. The truss should fit snugly, and should be worn at night as well as during the day. Whenever it is to be changed, the child should lie down. Occasionally, the skin of the groin becomes chafed. This can be guarded against and prevented in most of the cases by keeping the parts dry and by changing the worsted as often as it becomes soiled by urine or dejections. The success of the truss depends entirely on the intelligence of the mother and the care with which she carries out her detailed instructions. She must have an ever-watchful eye on the truss, and readjust it as frequently as it becomes loose. J. C. Hubbard (Annals of Surg., Oct., 1901).

HYDROCEPHALUS IN INFANTS, CHRONIC.

Treatment.—In regard to tapping in cases of hydrocephalus and introducing aseptic air, the provisional conclusions warranted by personal limited experience are few:—

1. With due precautions the fluid of chronic hydrocephalus may be completely evacuated from the yet unclosed skull of infants, and aseptic air may be allowed to take its place. This operation may be repeated without detriment and with scarcely more risk than be-

longs to the usual method of paracentesis.

2. In favorable cases of moderate effusion a single operation may suffice. Continued oozing from the puncture for a few days after the removal of the tubes is not unfavorable.

3. In cases of considerable effusion an obvious indication is to relieve the brain from the weight and from the pressure of the fluid. The evacuation is facilitated by the introduction of aseptic air. In one case this treatment has proved to be of decided advantage. By a timely repetition of the operation a hydrocephalic infant might be enabled to carry the weight of the head, and, if the treatment were begun sufficiently early, permanent damage to the brain-tissue might be averted and a normal development might perhaps ensue.

4. In large heads, while hydrocephalus persists, a considerable splashing sound is readily obtained. There is obvious risk in eliciting this sound by forcible succussion, and for the same reason any abrupt movement of the head should be avoided. William Ewart and W. Lee Dickinson (Pediatrics, Oct. 15, 1901).

LARYNGITIS, TUBERCULOUS.

The principles to bear in mind in tuberculosis of the larynx are as follow:—

1. Pathology and clinical experience show that in the majority of cases the focus of infection is near or in the crico-arytenoid joint.

2. Many cases only present themselves at a stage when the possibility of effecting a cure by local measures is quite untenable.

3. The principle of *primum non nocere*, should be constantly kept before

us, as many measures which have been tried in this affection have only distressed the patient and hastened the disease.

4. In the light of present knowledge and therapeutic resources the most rational principle is to attempt to make an early diagnosis of the disease while in an incipient stage. Any persistent or suspicious laryngeal catarrh should be treated seriously on even a presumptive diagnosis.

5. Once diagnosed, the patient should be treated on the principles laid down in the modern method of sanatorium treatment.

6. Symptomatic treatment should be directed to any irritative, catarrhal, or obstructive condition of the air-passages.

7. In addition, silence should be enjoined, the disuse of the voice being proportionate to the degree in which the focus of infiltration approaches or interferes with the arytenoid joint.

8. In cases where the situation or extent of disease do not warrant an expectation of complete arrest of the process, treatment should be symptomatic, and in many such cases the sanatorium treatment is uncalled for. St. Clair Thomson (*Phila. Med. Jour.*, Sept. 14, 1901).

MOVABLE KIDNEY AND ITS FIXATION.

The following operation for fixation of the kidney has been successfully used: A lumbar incision is made, cutting through the deep lumbar aponeurosis along the same line, and separating the circumrenal fat. The kidney is grasped with the left hand and brought out of the wound and maintained there by packing around it some layers of gauze. Two crossing incisions are now

made in the middle of the posterior surface of the kidney, so as to enable the surgeon to reflect four little flaps of capsule and to denude about three or four square centimeters of kidney-tissue. The flaps are resected at their bases. The kidney is now pierced from before backward with three long, round, full-curved needles armed with long pieces of catgut, the sutures being placed at equal distances, the first at the upper pole, the second in the middle of the kidney, and the third at the lower pole. After this the kidney is put back into the abdominal cavity, the needles and the ends of the threads being held. The needles are then passed by means of needle-holders through the entire thickness of the muscular wall. The aponeurosis and the other muscles are then sutured, and the skin-wound is closed with interrupted sutures. A small capillary drainage-tube is left. Schiassi (*Riforma Medica*, July 22, 1901).

MYELOMA.

Symptoms. — Myeloma may produce various symptoms. The most constant, however, are pains in the chest, back, and extremities, which are probably to be referred directly to the tumors, as well as deformities and a gradually increasing anæmia, often accompanied by all the symptoms of a progressive pernicious anæmia, or a pseudoleukæmia, with death usually ensuing either from exhaustion or broncho-pneumonia, or from the collection of fluid in the pleural cavities. Symptoms of pressure upon the cord from destruction of the vertebræ, or direct pressure of the new growth in the vertebræ is a not infrequent complication. The presence of albumose in the urine has been confirmed in eleven of the nineteen cases which were undoubtedly myeloma.

This is, however, by no means constant. It is, however, certainly present in more than traces in a majority of the cases, and its presence is always enough to direct attention to the possibility of disease of the bones, and may lead to the correct diagnosis. On the other hand, while albumose in small quantities may be found in a number of diseases,—especially, like peptones, in cases where there is destruction and absorption of pus,—its presence in large quantities does not invariably point to the presence of myeloma. It is probable, however, that it always points to disease of the bones. Myeloma is a tumor-formation in the marrow of the bones, affecting pre-eminently the spongy bones and usually sparing those of the extremities, produced by a multiplication of one of the varieties of the cells of the marrow, possibly the plasma-cells. These tumors are always multiple, the various nodules usually appearing about equally well developed, but showing no tendency to form metastases, though occasionally there has been some infiltration of the periosteum or of the neighboring muscles. J. J. Thomas (Boston Med. and Surg. Jour., Oct. 3, 1901).

PARALYSIS, TENDON-GRAFTING IN INFANTILE AND SPASTIC.

Of 11 cases of tendon-grafting for paralytic talipes, 6 have shown good results and 5 fair results, meaning by "good" where the results aimed at had been fully attained and the improvement permanent, and by "fair" where a partial improvement has been secured. In no case has failure resulted. The results of the four operations in the forearm for spastic trouble have been good in 3 and partial in 1.

Tendon-grafting is an operation with a future before it, and it has great pos-

sibilities, but it must not be employed indiscriminately. It is useless in cases of flail-like joints, where all the muscles are badly affected, and it should not be employed in slight cases of paralytic valgus or varus or in slight equinus, the last being easily remedied by section of the tendo Achillis. It is not an operation for the display of anatomical knowledge nor of mechanical skill in operating, but one requiring the nicest care in the selection of cases and of the muscles to be employed and careful watching of the results of the operation for several years afterward. A. H. Tubby (Pediatrics, Oct. 15, 1901).

PHTHISIS, A SIGN OFTEN ASSOCIATED WITH EARLY.

In many cases of pulmonary phthisis, but more particularly in those which follow the ordinary sequence of initial deposition and consolidation within the upper lobes accompanied by dullness in the supraclavicular and supraspinal areas, a number of venous varicosities one-third to two-thirds of an inch in length may often be observed beneath the skin in the neighborhood of the spines of the seventh cervical and three upper dorsal vertebræ. They appear early, and may become very conspicuous. At times they become apparent only after stretching the skin laterally. Local pain is occasionally felt; also slight œdema may be found over these vertebral spines.

The sign appears useful. The attention of the practitioner is at once arrested by it, and the condition of the posterior apices of the upper and lower lobes determined. The presence of auscultatory signs within this dorsal area, combined with wasting and myœdema, render the diagnosis of early phthisis, even in the absence of spu-

tum and bacilli, practically conclusive. Walker Overend (*Lancet*, Aug. 31, 1901).

PULMONARY OEDEMA, ACUTE.

Treatment.—If the pulse is full and the heart acting vigorously, the spasm of the minute arterioles can be as readily relieved by nitroglycerin or morphine as by the depressing effect of the abstraction of blood. If the immediate origin of the trouble is the weakened muscle of the heart, showing its feebleness by frequent, irregular, and inefficient contractions, with a small and fluttering pulse, one should give at once under the skin $\frac{1}{100}$ grain of atropine sulphate, with $\frac{1}{50}$ grain of strychnine sulphate. This is to be inserted just below the clavicle in order to reach the heart with the least loss of time. While this is being absorbed attention can be given to preparations for venesection, if it should prove necessary. Atropine rapidly contracts the vessels, stimulates powerfully the sympathetic system, increases the force of the heart's beat, raises arterial tension, stimulates the respiratory centers, and dries up the secretions of the skin and mucous membranes. The dose required is whatever may be sufficient to produce its physiological effect, easily gauged by watching the amount of dilatation of the pupil. It is safe to begin with $\frac{1}{100}$ grain, and repeat in a half-hour or at longer intervals, until the system is well under its influence. Charles O'Donovan (*Amer. Med.*, Sept. 14, 1901).

RESUSCITATION, OGATA'S METHOD OF, IN THE NEWBORN.

As soon as the parted child is perceived to be in asphyxia, the foreign bodies sucked into mouth and pharynx are wiped off with a cloth put round

the index or the fifth finger and the antero-inferior margin of chest is struck lightly with palmar aspect of the extended fingers of one hand, holding the child's trunk with the other. The stroke should be a regular spring-like action of the finger-tips, and it is of special importance to put them exactly at the heart district. The stroke should be repeated 10 or 15 times in a minute, and there must be regular little interval after every stroke. The fluid expelled from nostrils or mouth during the practice should be wiped off immediately.

As a result of personal experience, the method is believed to be better than any other. This method is called "Ogata's stroke resuscitation."

This simple manipulation will not suffice for such a case of anæsthesia as arrested pulsation in funis and pallor, and Ogata's shaking resuscitation may be used.

1. The feet of the child extended on back are grasped by one hand and the shoulder is held from the back with the other hand.

2. The operator standing erect or kneeling will bring the child held with both hands up to the breast.

3. The trunk of the child in the extended posture is gradually elevated with the hand on back; then the head is brought still nearer to the feet and the child's body is flexed strongly at the hip-joint; simultaneously the chest is pressed with the hand. Thus the expiration takes place. This is the first manipulation.

4. Now the head is raised with the hand on back and then by the gradual extension of the trunk is thrown down on the back and the child is returned to the previous extended posture. At this time the compression on the chest

by the hand on back must be thoroughly removed. Thus the inspiration is induced. This is the second manipulation.

5. In the moderate case, the above two manipulations are repeated. If this be not effectual, the following method should be undertaken:—

6. After a moment's pause in the second posture in the course of changing from the first posture to the second posture, the hand on back is removed. Thus the upper part of a child's body is thrown down and shaken. Upon this dependent posture, the upper limb is also thrown down strongly over the head and special strong inspiration is caused. This is the third manipulation.

7. This method should be repeated 8 or 10 times in a minute and practiced most regularly. After every 8 or 10 manipulations a warm bath is given, and the loss of temperature must be prevented. M. Ogata and T. Futagawa (*Sei-I-Kwai Med. Jour.*, Aug. 31, 1901).

RHEUMATISM, ACUTE.

Treatment.—In the treatment of rheumatism rest in bed is an essential factor, and should be maintained for at least ten days after the temperature has become normal and all other symptoms of the disease have disappeared. Freedom from pain in the joints must not be taken as the indication for allowing any indulgence to the patient, because cardiac changes may arise after the joints have recovered.

Sodium salicylate should be given in doses of 20 grains every two hours until the fever is reduced and the acute articular pain subsides; after this the intervals between the doses may be increased to four or six hours, and continued in this way for at least four

weeks. If the drug be discontinued before this time, the patient is almost certain to suffer from a return of the symptom.

The salicylates may distress the stomach, depress the heart, cause delirium or other nervous disturbance, produce albuminuria, or give rise to a variety of skin-eruptions. The gastric trouble is often due to the sweetish taste of the drug, which may be obviated by the addition of some bitter preparation, such as gentian, to the solution. The cardiac depression may be prevented by the simultaneous use of stimulants, and the nervous disturbance alleviated by the free administration of bromides; yet it sometimes happens that the drug must be discontinued for some of the above reasons, and in the case of albuminuria its temporary or permanent interruption is imperatively demanded. Salicin or salol may be substituted for salicylates except when there is renal disturbance. In addition to the salicylates, an alkali, such as the citrate of potash in 20-grain doses, should be given. Cardiac complications are often cut short by the application of small blisters over the præcordia. The tepid bath, 70° to 75° F., is the only reliable treatment for hyperpyrexia, and it must be carried out with the precautions used in the bath-treatment in other febrile diseases. It is not advisable to do much for the joints beyond keeping them warm and rolled up on anodyne fomentations.

At first the food should consist chiefly of milk, but, as the symptoms abate, broths, farinaceous substances, and white fish may be gradually added to the dietary. During convalescence there generally is a condition of anæmia, which is best treated by some form of iron such as Bland's pills. William Watt Kerr (*Med. News*, Oct. 5, 1901).

RHUS POISONING.

In rhus-toxicodendron and rhus-venenata poisoning collodion prevents the spread and allays the itching. In all acute personal cases a few applications have answered, while, in the more subacute, 10-per-cent. aristol may be added with very good results. (W. S. Erdman.)

SPINAL SUBARACHNOID INJECTION OF COCAINE.

Conclusions arrived at from a close study of the situation are: That cocaine analgesia is not likely to prove satisfactory in operations above the level of the diaphragm; that probably it will not be much used in abdominal cases which are not clear, and are likely to prove tedious or difficult; that its special field will be found in operations upon the lower extremities, including amputations and resections, and upon the perineum, bladder, and rectum; also that it is useful in operations on old persons and those suffering from diseases of the heart, lungs, or kidneys, from cirrhosis of the liver, and from abdominal dropsy; and that it can be successfully employed when a patient fears general anæsthesia. J. G. Sherrill (*Amer. Med.*, Oct. 26, 1901).

SYPHILIS AS SEEN BY THE OPHTHALMIC SURGEON.

The syphilitic lesions presented by the iris are:—

1. Simple plastic iritis: by far the most frequent form of syphilitic iritis and occurring as an early secondary symptom.

2. Nodular iritis, sometimes called gummatous iritis, which nearly always makes its appearance between six and nine months after the original infection, and very often when there is no other sign of syphilis present. The typical

form of nodular iritis is absolutely pathognomonic of syphilitic infection, and requires neither history nor any other sign or symptom to establish the diagnosis. A more diffuse, but rusty-looking, thickening or infiltration of the sphincter portion of the iris sometimes occurs under similar circumstances, and is almost equally characteristic as a sign of syphilitic contamination, belonging to about the same period as the more definite nodular variety.

3. A mild form of iritis associated with opacity of the vitreous and other signs which justify a diagnosis of choroïdo-retinitis to which the iritis is secondary. This complex lesion is believed to belong between the first and third years after the primary infection. An ordinary iritis occurring in a syphilized person several years after infection is not necessarily to be regarded as a syphilitic lesion.

4. Scleritis, resembling the ordinary rheumatic form of this affection, and the much more formidable, though fortunately rare, gummatous cyclitis, are met with as distinctly tertiary syphilitic lesions.

5. A violent form of retinitis attended with much opacity of vitreous and great depression of vision usually affecting both eyes sometimes occurs as one of the earlier tertiary symptoms.

6. A milder, more chronic, and often relapsing form of retinitis is also not uncommon, but is of later development.

7. Optic neuritis, when due to syphilis, has only been personally seen as a tertiary lesion. It may be either local, affecting the ocular and orbital portions of the nerve, but much more frequently occurs as a descending neuritis due to some coarse intercranial lesion and in connection with other signs of brain disease.

8. Finally, one meets with disturbances of mobility due to syphilitic lesions of the nervous apparatus presiding over the muscular functions of the organs of vision. Nearly always monocular, irido-cycloplegia due to disease definitely localized in the ciliary ganglion is by no means a rare affection, and in more than half of all such cases is thought to be the result of syphilis. Frank Buller (Montreal Med. Jour., Sept., 1901).

TONSILLOTOMY-RASH.

It is the custom at the Central London Throat and Ear Hospital for all patients who are operated upon in the extern department to attend after a week's interval for examination; and in several instances the parent has reported that the child was kept at home because it had a rash which was thought to be "something catching." Subsequent investigation, however, in most cases proved its innocence of specificity. In other cases the rash was still visible on the patient, and unattended by constitutional symptoms. Of the 34 cases, 3 (which were in-patients) proved to be scarlet fever, while 1 developed diphtheria. The remainder were simple non-specific cases.

The eruption generally appears on the second or third day, either papular, roseolar, or erythematous in type. It most frequently attacks the neck, the chest, and the abdomen, sometimes extending to the face and the extremities. The earliest appearance noted is the day following operation, the latest one is the sixth day. Its duration is generally two or three days, but may extend to five days. After reaching its maximum intensity it rapidly disappears without desquamation, but is sometimes associated with intense itching. It may oc-

cur at any age. As a rule, there is but slight constitutional disturbance, and the child does not appear to be any the worse. In those cases personally investigated the temperature was only increased from 1° to 2° F. The occurrence of scarlet fever in 3 cases and diphtheria in 1 has, however, an important practical bearing, inasmuch that the removal of actively inflamed tonsils is advocated by many surgeons.

Examination of the blood during the week following the operation has with few exceptions afforded evidence of an increase in the number of the monocular white corpuscles. This leucocytosis, which rarely lasts beyond the tenth day, may be more than coincidental, yet it is hardly surprising after so great a disturbance of lymphoid structures. The removal of tonsils and adenoids likewise affords a very large area for absorption of toxic matter. The rash may also be interpreted as one due to drug intolerance, since most of the cases were taking the usual mixture of sodium salicylate and potassium bromide. Still, whatever its pathology may be, the knowledge that a rash often follows tonsillotomy and that it is not necessarily specific may be reassuring to practitioners experiencing the phenomenon for the first time. Wyatt Wingrave (Lancet, Aug. 31, 1901).

TUBERCULOSIS, PULMONARY.

Climate.—The following facts by G. A. Evans will help materially in selecting a climate for cases of pulmonary tuberculosis:—

1. Climate cool and moderately moist, general elevation, 2000 feet: Western slope of the Appalachian chain, Adirondacks, Catskill, Allegheny, and Cumberland Mountains.

2. Climate moderately warm and

moderately moist: Western North Carolina, Asheville (elevation, 2000 feet); western South Carolina, Aiken; Georgia, Marietta and Thomasville.

3. Climate warm and moist: Florida (equable); southern California, coast region (equable).

4. Climate warm and moderately dry, elevation about 2000 feet: South-western Texas, southern California (inland).

5. Climate cool and moderately dry, elevation about 1000 feet: Minnesota, Nebraska, and Dakota.

6. Climate cool and dry, elevation from 4000 to 7000 feet: Montana, Wyoming, Colorado, northern New Mexico, and western Kansas. In this group are to be placed Davos and San Moritz, in Europe.

7. Climate warm and dry, elevation 3000 to 5000 feet: Southern New Mexico and southern Arizona. T. Mellor Tyson (Therap. Monthly, Sept., 1901).

Mixed Infection in.—A bacteriological examination of 100 specimens of sputum from 81 patients suffering with pulmonary tuberculosis gave the following results: Of the 81 patients, the sputum from 35 revealed the tubercle bacillus alone; that from 20 the tubercle bacillus and streptococcus pyogenes; that from 13 the tubercle bacillus and staphylococcus pyogenes aureus and albus; that from 10 the tubercle bacillus, streptococcus, and staphylococcus; and that from 3 the tubercle bacillus, staphylococcus, and micrococcus tetragenes. It is therefore concluded that a number of tuberculous patients suffer with a mixed infection. Prognosis is rendered worse by the detection of secondary infection, and patients with such secondary infection are not suitable for sanatorium treatment.

A. von Weismayr (Zeits. f. Heilk., May, 1901).

TUBERCULOSIS, TRANSMISSION OF.

From a study of the transmission of tuberculosis, the following conclusions have been reached:—

1. That tuberculosis may be transmitted to animals through their eating the meat of certain other animals which are tuberculous or by their being inoculated with it.

2. That tuberculosis may be transmitted to animals through their ingestion of the milk of certain cows which are tuberculous, or by their being inoculated with it, both when the udder of the cow is diseased and when it is healthy.

3. That, therefore, the meat and milk of certain tuberculous animals contain living, virulent tubercle bacilli.

4. That the tubercle bacilli of cattle are pathogenic for man.

5. That, therefore, the meat and milk of certain tuberculous animals are capable of producing tuberculosis in human beings who use these products as food.

Practical Conclusions.—1. *In Regard to Meat.*—The meat of all food-animals, especially cattle, is unfit for food when the animal is highly tuberculous; but is safe for food when the animal is only slightly or moderately tuberculous, especially so if the meat is well cooked, provided the tubercular tissues are eliminated.

2. *In Regard to Milk.*—(a) The milk of a cow with tuberculous udder is always dangerous for food unless it is well sterilized.

(b) The milk of tuberculous cows with healthy udders is sometimes dangerous for food unless well sterilized. We cannot tell except by experiment, which is impracticable as a routine matter, when

such milk is dangerous and when it is not. Hence the milk of tuberculous cows without disease of the udder should always be looked upon with suspicion, and either not be used or be used only after sterilization.

(c) Tuberculous cows may be kept for breeding purposes provided they are isolated, even from their own offspring, and their products sterilized before use. Or

(d) They may be slaughtered for food under conditions imposed by the conclusions stated above in regard to meat. J. J. Repp (Amer. Med., Nov. 2, 1901).

VOMITING, LAGER BEER IN ACUTE.

Attention is called to the usefulness of lager beer in arresting obstinate vomiting. Its action is certain, intolerance rare. The beneficial effects are most marked in women and in those who are not habitual consumers of alco-

hol as a stimulant or intoxicant. Of the two varieties of beer,—the pale and the dark,—the latter is preferable. The amount need be but small, a bottle or two suffices. Singularly good results can be obtained from small doses. This is illustrated in the attacks of nausea, bilious vomiting, vertigo, and sleeplessness, often a striking syndrome of epidemic influenza in women; a wineglassful of beer, repeated in half an hour, will immediately soothe the disturbed organ and give a night of refreshing sleep.

As to the make of the beverage, there is no particular brew or brand to praise. In very severe and persistent vomiting, of four days' duration, caused by an inflammation of an ovary and Fallopian tube, immediate relief came after the patient had drunk the contents of three bottles of pale beer of inferior and adulterated composition. Louis Kolipinski (Med. News, Oct. 5, 1901).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs: Endocardopathies: with Critical Notes and New Figures. By T. E. Satterthwaite, M.D., New York, 1901.—Acute Endocarditis: Benign and Malignant, with Illustrative Cases. By T. E. Satterthwaite, M.D., New York, 1901.—Analgesia from the Spinal Subarachnoid Injection of Cocaine. By J. Garland Sherrill, A.M., M.D., Louisville, Ky., 1901.—The Complications and Degenerations of Fibroid Tumors of the Uterus as Bearing upon the Treatment of these Growths. By C. P. Noble, M.D., Philadelphia, 1901.—The New Formation of the Female Urethra: with Report of a Case. By C. P. Noble, M.D., Philadelphia, 1901.—General Considerations of Treatment of Placenta Prævia. By C. P. Noble, M.D., Philadelphia, 1901.—Treatment of Acute Anterior Urethritis. By W. A. Hackett, M.B., M.C.P.S., Detroit, Mich., 1901.—Syphilis of the Liver. By Max Einhorn, M.D., New York, 1901.—On Apparent Tumors of the Abdomen. By Max Einhorn, M.D., New York, 1900.—Sitophobia of Enteric Origin. By Max Einhorn, M.D., New York, 1901.—A Study of Burns: with a Plea for their more Rational Treatment. By Frederic Griffith, New York, 1901.—The Primary Intradural Tumors of the Optic Nerve: Fibromatosis Nervi Optici. By W. G. M. Byers, Montreal, Canada, 1901.—Concerning Human Vivisection: a Controversy. 1901.—The Indeterminate Sentence in New York. By Clark Bell, Esq., LL.D., New York, 1901.

From the U. S. Department of Agriculture, Washington, D. C., the following: The Tuberculin Test of Imported Cattle. By D. E. Salmon, D.V.M., 1901.—Pine-apple Growing. By Peter H. Rolfs, 1901.—Prunes and Prune-culture in Western Europe: with Special Reference to Existing Conditions in the Pacific Northwest. By Edward R. Lake, 1901.—Irrigation in Field and Garden. By E. J. Wickson, M.D., 1901.—Field-work of the Division of Agrostology: a Review and Summary of the Work Done Since the Organization of the Division, July 1, 1895. By Cornelius L. Shear, 1901.—American Breeds of Fowls: II. The Wyandotte. By T. F. McGrew, 1901.—Poultry-raising on the Farm. By D. E. Salmon, D.V.M., 1901.—Emmer: a Grain for the Semiarid Regions. By Mark Alfred Carleton, 1901.—Insect enemies of the Spruce in the Northeast. A Popular Account of Results of Special Investigations: with Recommendations for Preventing Losses. By A. D. Hopkins, Ph.D., 1901.—Some Miscellaneous Results of the Work of the Division of Entomology. V. By L. O. Howard, 1901.—The Fall Army-worm and Variegated Cutworm. By F. H. Chittenden, 1901.—Exhaustion and Abandonment of Soils. Testimony of Milton Whitney, before the Industrial Commission, 1901.—Publications of the U. S. Department of Agriculture. For Sale by the Superintendent of Documents, Washington, D. C., 1901.

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Cyclopædia of the Year's literature.

ANÆSTHESIA, GENERAL AND LOCAL.

E. E. Brown¹ says that heart-lesion is by no means the only condition to which nitrous oxide with oxygen as a general anæsthesia is peculiarly adapted. Dis-

eases diminishing the efficiency of the kidney, pregnancy, inflammatory diseases of the lungs or bronchial tubes, and irritable stomach are not contra-

¹ Cleveland Jour. of Med., Oct., 1901.

indications for nitrous oxide and oxygen as for the other anæsthetics.

Within the past three months four stomach cases have been operated on under this anæsthetic with less than the usual irritation of the alimentary tract.

J. F. Stephan² thinks that the great advantage in the use of oxygen in connection with nitrous oxide is that a longer and more profound anæsthesia is obtained, free from cyanosis and anoxæmic convulsion. The anæsthetic does not have the disagreeable sweet taste and the suffocating sensation so objectionable to the patient in the first stage of pure nitrous-oxide anæsthesia. There is also an advantage in the use of oxygen with nitrous oxide over the use of air as the oxygenating agent. If an admixture of air and nitrous oxide containing more than 6 per cent. of oxygen is used, complete anæsthesia cannot be produced, because the percentage of nitrous oxide (being about 60 per cent.) is not great enough to produce the desired result. It is often necessary to increase the percentage of oxygen in a mixture of nitrous oxide and oxygen to 8, 10, or even 15 per cent. to obtain the desired freedom from asphyxial manifestations. Personal habit is to give the patient about 2 or 3 per cent. of oxygen approximately, and increase to 7, 8, or 10 per cent., according as the patient requires.

The dangers of etherization are, in the opinion of M. H. Richardson,³ trivial. The subcutaneous use of cocaine, especially in extensive dissections, will be found to be much more hazardous. The safety of ether depends upon the individual. If he is carefully studied, the chief dangers will be avoided, for contra-indications to the use of ether will have been discovered. Healthy subjects, well prepared, are

not injured by etherization in a large enough ratio of cases to justify discussion. Accidents come from disregard of danger-signals and from overetherization, not from the intrinsic dangers of the drug carefully given.

Local anæsthesia may be desirable or imperative, according to the circumstances. When nothing in the patient's condition forbids general anæsthesia, that method is preferable for major operations. For minor operations, the local injection of cocaine or other local anæsthetic is perfectly satisfactory. Spinal anæsthesia, or local anæsthesia by subcutaneous injections over considerable areas, may be considered in patients who are willing to take the possible risk because of their abnormal dread of a general anæsthetic. Few patients, however, would be willing to run an unknown and serious risk owing to dread of a known and safe method were the facts of the case fairly presented to them. They can hardly be advised to submit to spinal cocainization by those who look upon that means as of doubtful safety—to say the least. If willing, in spite of possible dangers, to risk spinal cocainization for an imperative operation, they would seem to have a right to try it.

The only justification for the use of extensive local and of spinal anæsthesia lies in diminished risk to the patient. There are enough conditions in which the risks of general anæsthesia are great to provide a wide field for anæsthesia. The most important are the abdominal diseases or conditions which endanger the patient's life by regurgitations into the throat during profound anæsthesia.

² Cleveland Jour. of Med., Oct., 1901.

³ Boston Med. and Surg. Jour., Apr. 25, 1901.

A similar danger is always present when emergency operations are performed upon patients with full stomachs. Many of the hospital cases are of this class.

When the heart, lungs, or kidneys are seriously diseased, the selection of an anæsthetic may present great difficulties. Heart disease is usually regarded as a contra-indication to general anæsthesia. Personal experience is quite the opposite.

Local anæsthesia is to be preferred for all trivial operations in regions where it can be thoroughly applied. A 1-per-cent. solution of cocaine under the skin, slowly injected through an area first anæsthetized with ethyl-chloride, may be used.

In acute febrile diseases, especially typhoid fever, pneumonia, pleurisy, pyæmia and septicæmia, malignant endocarditis, purulent pericarditis, and even the like, it seems a question whether the dangers of general anæsthesia will be avoided by local or by spinal cocaineization. The use of these doubtful methods in operations of emergency seems ultraradical, if not, with the present knowledge, unjustifiable.

There is a class of cases in which these new methods find a reasonable application, and that includes the patients who from previous experience are known to behave very badly under general anæsthesia.

Another class inviting disaster under general anæsthesia comprises operations upon deep cervical plegmons, tumors close to and adherent to the trachea, and inflammations and growths involving or pressing upon the recurrent laryngeal nerves.

The value of local anæsthesia in these cases is great.

In the removal of thyroid tumors the

selection of an anæsthetic is very important.

It is not believed that either spinal or local cocaineization, after fifty years of use as extensive and varied as that of ether, or even of chloroform, has been, will show a safety to be compared with them.

Turner Anderson⁴ says it is impossible to state that any anæsthetic is wholly devoid of danger. Statistics are altogether in favor of the safety of ether. If one takes the statistics of deaths from chloroform and compares them with deaths from ether, other things being equal, he will find that four or five to one as regards safety would be clinically borne out. In the hands of the experienced, ether is much the safer of the two. If there are no contra-indications, if there are no renal complications, ether must be regarded as the safer of the two.

In military surgery, in obstetrical practice, and in children chloroform will probably continue to be the accepted agent, but in civil surgical practice it is quite a different thing.

In considering the choice of an anæsthetic W. J. McCardie⁵ urges in every case, unless strongly contra-indicated, the use, or trial at any rate, of ether, best preceded by a little nitrous oxide or A. C. E. Infants and children take ether as well or better than do adults, and there is more anxiety, difficulty, and danger in giving chloroform to children and infants than to their elders.

The A. C. E. or, better, the E_2C_1 mixture is a *via media*; and often in cases of doubt and difficulty gives very good results.

When giving chloroform, it is well,

⁴ Amer. Pract. and News, July 1, 1901.

⁵ Treatment, Oct., 1901.

during the stage of struggling, to administer ether freely till anæsthesia is established, thus passing over the most dangerous period under the stimulating influence of ether.

A great many small or moderately short operations, lasting up to fifteen minutes or more, can be done under the influence of nitrous oxide, or, better, nitrous oxide mixed with oxygen, with great advantage to the patient, and it would appear that, failing nitrous oxide, ethyl-chloride can be occasionally used as an alternative to it.

Operations involving much shock or hæmorrhage should be done under ether, and especially is this so in children, as, *e.g.*, adenoid operations, osteotomies, and circumcisions.

The healthier and stronger, also the more alcoholic, the patient, the more dangerous is chloroform.

Finally, in administering anæsthetics the personal equation of the administrator counts for much. Unremitting watchfulness and experience must be his to insure as far as possible the safety of the patient, and he should choose his anæsthetic having in foremost view the well-being of his charge, and not being bound by the routine of any one school.

W. S. Magill⁶ thinks that there is a growing consensus of opinion that, if chloroform could be relieved from the accidents of primary syncope, there would be little hesitation to admit its claim to be the master of anæsthetics.

To avoid the point of danger English surgeons are employing nitrous oxide to induce the anæsthesia, which condition is then easily maintained with chloroform.

With the same object in view, Dr. Hartman, Dr. Bourbon, and the writer suggested and extensively used at Hôpital Bichat in Paris, since 1892, the

remarkable agent of short narcosis, ethyl-bromide. With this drug the initial anæsthesia is rapidly induced without distress, and can then be maintained with very minute doses of chloroform.

The extended use of ethyl-bromide confirms more deeply this method of mixed anæsthesia as fixed upon a sound physiological basis.

The absolute necessity of a chemically pure compound is a reason for insistence upon a careful examination before use.

Absolute purity is the only condition by which ethyl-bromide can be admitted as an agent of almost perfect safety for the induction of anæsthesia.

For prolongation of unconsciousness, the narcosis induced by this bromide is easily and safely continued with chloroform in very small quantity. A teaspoonful of chloroform (in drop doses) is frequently all that is needed to continue the ethyl-bromide-induced anæsthesia for the space of an hour.

B. C. Frazier⁷ considers the Esmarch inhaler as the most satisfactory instrument in administering chloroform, for the inhaler can be held some distance from the face and the anæsthesia be begun by a single drop. One should never begin by telling patients to take long or deep breaths, for if there is considerable vapor to come in contact with the fauces they are very apt to cough or strangle, thus making them more fearful, and they will not breathe freely any more during the primary stage. One should ask them to breathe just as though they were lying down for a nap.

It is personal custom to have a wet cloth put over the eyes in the beginning to prevent the irritating effect of the

⁶Med. News, Oct. 5, 1901.

⁷Amer. Pract. and News, July 1, 1901.

vapor. In hot weather a cold, wet cloth may be used; in cold weather a hot one.

Tubercular patients do well under chloroform, and in tubercular empyema necessitating extensive operation the patient is not a bad subject for anæsthesia unless there is leakage upward into the upper air-passages, which may cause coughing and strangling. Patients operated upon in the Sims position all do well, and even those who have to lie directly on the chest and belly. The Trendelenburg position is favorable in some cases and very unfavorable, indeed, in others. Where there is feeble circulation, and the patient is small and thin, without very abundant abdominal contents, the Trendelenburg position is not contra-indicated; but when there is a large abdominal cyst, or where there is a large amount of fluid free in the cavity, the lowering of the head may mean a serious affair.

Chloroform is the ideal anæsthetic in head-injuries or brain operations; also in labor. Chloroform is not considered a heart-depressant if given in proper amounts and administered slowly. Organic heart disease is no barrier to the use of chloroform unless there is dilatation of the heart without hypertrophy.

Chloroform is more pleasant to inhale than ether, and more rapid even when given slowly enough to make it pleasant; old people bear it better than the middle aged, as do also children. It is less likely to cause nausea, and is less irritating to the kidneys. It can be given where it would be dangerous to give ether (where there is an open flame).

Heinz Wohlgemuth⁸ combines oxygen with chloroform with a view of avoiding asphyxia. The striking effect of this chloroform-oxygen narcosis is mani-

fested in the following symptoms: After several inspirations the skin and visible mucous membranes become light red. Extremely anæmic and weak patients exhibit a healthy color. The pulse becomes slower and fuller, similar to a digitalis pulse, and its rate is nearly always about 60. Narcosis has reached the surgical stage in little children in one-fourth of a minute; in larger children and women in three to seven minutes; in men in five to twelve minutes. An insufficiency in the chloroform-supply with a consequent lightening of the anæsthesia increases the pulse-rate. Respiration is absolutely uniform, slow, and quiet. A stage of excitement is but rarely observed, and then, as in alcoholics, it is short and moderate in degree. Vomiting during and after anæsthesia is comparatively rare. There is never an increase of secretion of mucus and saliva. The sensations observed when the patient is awakening are agreeable in character.

Personal experience with this form of narcosis comprises more than three hundred cases. One hundred and sixty-six patients were fully conscious immediately after operation; 13 required between 8 and 30 minutes; one woman, after the use of 55 grammes of chloroform, slept 3 hours; 21 dispensary patients got off the table and walked home. Kidney irritation was never observed.

In giving a general anæsthetic, W. M. Banks,⁹ having obtained quiet in the room, tells the patient to count after him up to 100. He counts very slowly; then begins to sing the numbers in a drawing tone, and finally he performs a sort of chant. It seems to lull the

⁸ Interstate Med. Jour., Oct., 1901.

⁹ Lancet, Nov. 16, 1901.

patient to sleep. A large number of persons will cease counting somewhere about 50, if they have had some brandy and all around is silent.

As to anæsthetics at various ages, infants and very young children get horribly pale under chloroform and have to be carefully watched, but they take it easily, although they often require a great deal.

No bronchitic or asthmatic subject should be given ether, and chloroform is by far the best anæsthetic for very old people.

A man with albuminous urine and diseased kidneys is a dangerous subject, especially for chloroform, and in his case effort should be made to do with the least possible amount of anæsthetic and, if possible, to manage by means of local anæsthesia.

As regards the safest position in which a patient can be placed who has to take an anæsthetic, the recumbent position on the left side is the safest. The upright position in a chair is certainly the worst and, among other things, has contributed to the many fatalities which have occurred during dental operations.

As the result of an observation covering over 3000 anæsthesias seen during the past fourteen years, I. F. Zematsky¹⁰ advises a combination of ethyl-bromide and chloroform for general anæsthesia. In the combined anæsthesia, narcosis sets in after from 45 to 55 seconds, occasionally even in 20 seconds, and the longest preliminary stage is not over 2 minutes. The patient falls asleep so quickly that he has not the time to analyze his sensations.

In administering it the ethyl-bromide is given first, from 5 to 10 grammes of it being used; then chloroform is dropped on the mask. Contra-indica-

tions to the use of ethyl-bromide are atheroma and alcoholism.

In operations for adenoids J. W. Gleitsmann¹¹ uses ethyl-bromide almost exclusively, having performed more than 500 operations without a serious accident. He operates for enlarged tonsils or adenoids with the child sitting upright on the lap of an assistant, who quickly lowers the head and shoulders of the child when the operation is almost complete, to prevent blood from passing into the larynx or throat.

Some five months ago John Mackie¹² had his attention drawn to chloride of ethyl as a general anæsthetic, and at once put it on trial. He has had it in use ever since, and finds that it has greatly simplified and facilitated his work in nasal surgery. In operations on the turbinals and sinuses it has been used 27 times, 4 times in adenoids, twice in septal deformity. In addition, it has been given for dentists and general surgeons 15 times. In no case has there been the slightest anxiety or a dangerous symptom seen.

The mode of administration found most satisfactory is to press the mask well over the face so as to exclude all air, and to give the drug briskly and continuously, taking care to send the spray right into the gauze in the ball of the inhaler. For a short operation, such as the curetting of the anterior ethmoidal cells, from $\frac{1}{2}$ to $\frac{3}{4}$ minute of this brisk administration is sufficient. This will give an anæsthesia of from 2 to 3 minutes. For longer operations it may be pushed considerably beyond this. The action of the drug is so ener-

¹⁰ *Vratch*, Aug. 25, 1901.

¹¹ *Med. Record*, Nov. 2, 1901.

¹² *Brit. Med. Jour.*, Sept. 28, 1901.

getic that there is some difficulty in being sure as to the extent of the anæsthesia, but by quickly removing the mask and testing the conjunctival reflex, one may be able to satisfy himself as to this. From the local action of ethyl-chloride in the nasal passages, anæmia is produced, and one has practically a bloodless operation. However, anæmia soon passes off, and violent hæmorrhage may ensue, and one should not allow the patient to leave without providing for this by plugging.

James P. Tuttle¹³ has had an experience with 230 cases of anæsthesia by means of ethyl-chloride. He does not consider it in any sense of the word a dangerous anæsthetic. It certainly is not more dangerous than ethyl-bromide. Two surgeons in New York have communicated to him the details of two deaths that have taken place from the use of ethyl-bromide. In other cases there have been serious annoying symptoms. There have been over 2000 cases in which ethyl-chloride has been employed. Not only have there been no deaths, but there have not even been any dangerous symptoms. If the anæsthetic is used carefully, it is an ideal method of producing narcosis for minor operations.

It is quite as frequent to have nausea after ethyl-chloride as after nitrous oxide. Neither anæsthetic must be employed with the idea that after-vomiting will surely be prevented. The principal advantage of the use of ethyl-chloride is the rapidity with which patients come under its influence.

Besides the distinct benefit of a shorter preliminary stage ethyl-chloride can be administered much more easily than nitrous oxide, because the apparatus required is not as cumbersome as that for nitrous oxide. It can be used

in conjunction with ether and chloroform.

S. Ormond Goldan¹⁴ considers that ethyl-bromide and ethyl-chloride are more dangerous than ether or chloroform, and are suitable, as a rule, only for minor operations. They do very well in taking the place of nitrous oxide at the beginning of anæsthesia. Ethyl-bromide is safer and more economical than ethyl-chloride.

The operations performed by F. C. Floeckinger¹⁵ under anæsthesia by nirvanin injections by the aid of the Oberst-Braun method are 28 cases of panaritium of mixed nature; 2 cases of lipoma of the extremities; 1 case of osteomyelitis with necrosis of the tibia; 1 case of multiple ligation of the branches of the greater and lesser saphenous veins; 1 case of disarticulation of the thumb at the metacarpophalangeal joint; 6 cases of phlegmon of the palm of the hand (septic nature with abscess-formation beneath the deep palmar fascia); 4 cases of ingrown nail; 4 cases of circumcision.

In ordinary cases a 2-per-cent. solution of nirvanin is applied, and in extensive operations, in which a large amount of injection-fluid must be used, 1-per-cent. and $\frac{1}{2}$ -per-cent. solutions suffice. As a solvent for nirvanin, a decinormal salt solution, with the addition of a little muriate of morphine to lessen the pain of the injection, is employed.

In order to open felons painlessly, use is made of the following method: The finger concerned is encircled with two turns of a thin rubber tube, one inch from the site of the median lateral in-

¹³ Med. News, Nov. 2, 1901.

¹⁴ *Ibid.*

¹⁵ Buffalo Med. Jour., Sept., 1901.

cision. After waiting a few moments a second rubber tube is applied behind the first one, which latter is then removed. The second tube produces a greater degree of constriction than the first. After the constriction, a syringe holding 10 cubic centimeters, with a fine nozzle, having a sharp point, is filled with a 2-per-cent. solution of nirvanin, and the injection is made laterally in the aponeurosis of the finger. In order to render the first puncture painless, the chloride-of-ethyl spray is used. The needle is introduced distally from the constricting tube in a peripheral direction, and the fluid slowly injected. Quite an amount of pressure is necessary in order to empty the syringe. After practicing the injection on one side of the finger the process is repeated on the other side, and the operator waits for a few moments. It is difficult to state the exact interval of delay necessary before operating, as this depends upon the degree of inflammation, and in one case 23 minutes were needed before a painless incision could be carried out. Patients often complain for hours over persistent pains at the place of constriction.

On an average, 1 grain of nirvanin proved successful, and in no case were toxic phenomena observed. If the constriction was applied at the base of the finger, 4 punctures were necessary on the average, viz.: 2 dorsal and 2 palmar. The needle should not enter too deeply, in order to better encounter the direct surroundings of the nerve.

This method gives excellent results if the technic is under control and the operator has sufficient patience.

John Moir¹⁶ considers that beta-eucaine possesses undoubted advantages over cocaine, and should always have the preference, being less toxic and less irritating, while, at the same time, it is

equally effective in producing anaesthesia. Beta-eucaine has been personally used in a considerable number of cases for affections of the eye, ear, mouth, nose, and throat with satisfactory results in every case, relief of pain, with no after-effects, and no return of the symptoms for which it was prescribed.

One advantage beta-eucaine possesses over other anaesthetics is that it causes no sickness or irritation, vertigo, syncope, or pain; so that it is not necessary to put the patient to bed; they may sit up during its use, and can go home with safety after the local anaesthetization.

HERNIA.

Treatment. — For the radical cure of femoral hernia R. H. Parry¹⁷ successfully performs the following operation: A curved incision with the convexity downward is made from a point a little external to the pubic spine to the middle of Poupart's ligament. A flap of skin is raised, the superficial epigastric vessels ligatured and divided, and Poupart's ligament within the wound thoroughly exposed.

The femoral sheath is opened near Poupart's ligament, and the sac and fat adherent to it turned out as far as possible by the aid of the finger. The sac is now opened, and adherent omentum separated or ligatured and removed. When denuded of the fat on its outer surface, the sac is usually much smaller than is the case in inguinal hernia, and the rules applicable to its treatment in the latter cannot be adhered to in all cases of femoral hernia. When the sac is small and its walls are thin and torn,

¹⁶ *Med. Times and Register*, Nov., 1901.

¹⁷ *Brit. Med. Jour.*, Oct. 19, 1901.

it should be removed and the opening into the peritoneum carefully closed.

An incision is made through the aponeurosis of the external oblique immediately above and parallel to the inner half of Poupart's ligament, the inguinal canal is opened, and its contents drawn aside in order to define the lower margin of the conjoint tendon. The transversalis fascia is next divided where it passes beneath Poupart's ligament to form the anterior layer of the femoral sheath. The peritoneum is left intact, except when necessary to ligature and remove omentum which cannot be returned through the crural ring. In retracting the parts now an excellent view is obtained of the upper surface of the ring, the femoral vein, and Cooper's ligament.

A catgut suture is passed through the fundus, where it is tied, and then through the neck close to the parietal peritoneum, and finally carried through the transversalis fascia and conjoint tendon. When the suture is tightened the sac doubles up and disappears beneath the abdominal wall; the suture is then knotted.

A strong catgut suture is carried by a sharp curved needle on a handle through the conjoint tendon and transversalis fascia, at a point opposite to the outer margin of Gimbernat's ligament, passed horizontally beneath the muscle and fascia for about half an inch and then brought through them. The inner end of the suture is now passed through Gimbernat's ligament, the outer through Cooper's ligament, and both are brought out in the groin. The second suture is applied in the same way, but while the outer end is being passed through Cooper's ligament close to the femoral vein care must be exercised lest the accessory obturator artery

be punctured. Traction on the end of the sutures brings down the conjoint tendon and transversalis fascia over the crural ring, and after it has been determined that no undue pressure is made on the vein the sutures are tied. Two or three medium catgut sutures connect the conjoint tendon with Poupart's ligament to assist in keeping down the tendon and to strengthen the inguinal canal. The remainder of the operation is completed in the usual way, two or three silk-worm-gut stitches keeping the edges of the skin together, while approximation of the rest of the wound is secured by a continuous horse-hair stitch. No drainage of any kind is used.

The same procedure has been adopted in cases of strangulated hernia. The sac is opened, and the bowel carefully examined. If found in a fit state to be returned, and the condition of the patient is favorable, the operation as detailed above is performed.

The operation H. J. Stiles¹⁸ prefers for the radical cure of inguinal hernia in children is practically Mitchell Bank's operation. There can be no doubt as to the value of Bassini's operation in adults; in children, however, there should be as little interference as possible with the anterior wall of the canal. The steps of the operation are:—

1. Exposure of the cord along with its covering and the pillars of the ring.
2. Isolation, ligature, and excision of the funicular process.
3. Closure of the ring.
4. Suture of the wound.

1. The incision is made a little above and parallel to the inner half of Poupart's ligament. It should not be carried down into the scrotum or too near the penis. The upper and lower flaps

¹⁸ Pediatrics, Nov. 1, 1901.

are to be lightly reflected so as to freely expose the inner pillar and the groove between Poupart's ligament and the fascia lata of the thigh.

2. After freeing the cord along with its coverings, the latter are caught up laterally at the lower part of the wound by two pairs of forceps, which are held by the assistant in such a way as to stretch out the coverings. These are then carefully divided; first, the inter-columnar and cremasteric fasciæ, the muscular fibers of the latter being easily recognizable; next, a thin, white layer, the infundibuliform fascia; and beneath it the peritoneum of the funicular process. Now comes the most important stage of the operation, the isolation of the sac,—that is to say, the funicular process. The vessels lie in a bundle to the outer side of the sac, while the vas, which is rather more adherent, lies more posteriorly. These structures are first detached toward the fundus of the funicular process, which is then grasped by a pair of forceps and pulled downward so that their separation may be continued upward as far as the internal abdominal ring. The neck of the sac is now transfixed and ligatured with catgut, the sac itself being cut away. It is quite unnecessary to suture the stump of the muscles of the abdominal wall above the level of the internal ring. The necessity for slitting up the neck of the sac practically never arises except in some cases of strangulated hernia. An opening may be made into the lower part of the sac in order that the surgeon may make sure that in ligaturing the sac he does not nip the bowel or include a piece of omentum or a portion of the wall of the bladder. When the coverings of the hernia have become thickened and adherent, considerable difficulty may be experienced in iso-

lating the sac and at the same time avoiding injury to the spermatic vessels and vas deferens. In these cases it is often an advantage to open more freely into the sac and to strip it from the other coverings.

3. The suture or sutures are passed through the inner pillar and conjoined tendon on the inner side and through Poupart's ligament on the outer side, care being taken to leave room for the cord. For the sutures catgut, which has been prepared by boiling in superheated alcohol according to Jellet's modification of Fowler's method, is preferred.

4. For closing the wound, an interrupted is preferred to a continuous suture. In the hands of a good nurse, an ordinary gauze dressing fixed by a bandage is preferred to the collodion method. Boric powder should be freely dusted in the neighborhood of the genitals. In infants all dressings may be dispensed with on the second or third day and the wound thickly dusted with boric powder or sealed with collodion.

In the case of an infant, after three or four days the child need not be kept constantly in its crib; it may with safety be nursed or carried about as usual. A child who has learned to walk should be kept off its feet for three weeks.

L. L. McArthur¹⁹ has been experimenting in the use of the aponeurosis of the external oblique muscle as a suture-material for the purpose of closing the inguinal canal in the radical cure of hernia. A small portion of the fascia, about $\frac{1}{8}$ to $\frac{1}{4}$ inch wide, is separated from the internal pillar, excepting at its pubic attachment. A piece of silk with a needle attached is then fastened to the free end. Although flat when

¹⁹Jour. Amer. Med. Assoc., Nov. 2, 1901.

first cut, this portion of fascia soon assumes a round shape, and can readily be drawn down through the tissues by means of the needle and thread attached to its free extremity. Where two layers of sutures are required, as in the Bassini operation, two strips of fascia may be separated: one from the internal and the other from the external pillar. This method of suturing has been employed in twenty cases of inguinal hernia with perfect primary union in all. The tissue is not absorbed, does not slough, but heals *in situ*. In very young children and in some women the external oblique is occasionally so poorly developed that the application of this method is impracticable.

An operation for the radical cure of umbilical hernia is performed as follows by W. J. Mayo²⁰:—

1. Transverse elliptical incisions are made surrounding the umbilicus and hernia; these are deepened to the base of the hernial protrusion.

2. The surfaces of the aponeurotic structures are carefully cleared an inch and a half in all directions from the neck of the sac.

3. The fibrous and peritoneal coverings of the hernia are divided in a circular manner at the neck, exposing its contents. If intestinal viscera are present, the adhesions are separated and restitution made. The contained omentum is ligated and removed with the entire sac of the hernia.

4. With forceps the margins of the ring are grasped and approximated; whichever way the overlapping is more easy of accomplishment suggests the direction of closure.

5. For this approximation an incision is made through the aponeurotic and peritoneal structures of the ring ex-

tending one inch or more transversely to each side, and the peritoneum is separated from the under surface of the upper of the two flaps thus formed.

6. Beginning from one to one and one-half inches above the margin of the upper flap, three to four silver-wire mattress-sutures are introduced, the loop firmly grasping the upper margin of the lower flap; sufficient traction is made on these sutures to enable peritoneal approximation with running suture of catgut. The mattress-sutures are then drawn into position, sliding the entire lower flap into the pocket previously formed between the aponeurosis and the peritoneum above.

7. The free margin of the upper flap is fixed by catgut sutures to the surface of the aponeurosis below, and the superficial incision closed in the usual manner. The later approximation is carried out by sliding one side under the other in the same manner. In the larger herniæ the incision through the fibrous coverings of the sac may be made somewhat above the base, thereby increasing the amount of tissue to be used in the overlapping process.

A. Hammesfahr²¹ performs the extra-peritoneal radical operation for median ventral hernia as follows: An oval flap is made, extending from the xiphoid cartilage to the symphysis pubis, which is to be as broad as possible at the middle and includes the subcutaneous fat. Then the hernial sac is loosened from its envelopments without opening it. If the hernial sac is opened, the opening is again closed with fine stitches. If after dissecting away the flap the anterior sheath of the rectus muscle is not yet

²⁰ Annals of Surg., Aug., 1901.

²¹ Centrallb. f. Chir., Sept. 21, 1901.

entirely exposed, more of the abdominal skin and subcutaneous fat is dissected away up the latter margin of the rectus muscle, and better still a little beyond. For the application of the subsequent sutures, it is essential that a finger of the left hand can be inserted under the rectus muscle. Therefore the rectus muscle is opened at any place in the median line; if the medial margin of the rectus cannot be distinctly palpated, a small transverse incision is made into the area occupied by the anterior rectus sheath, whereupon the part looked for can be found. One finger is now inserted in the incision of the rectus muscle,—that is, between the posterior surface of the muscle and the posterior sheath of the rectus; the finger then strips the sheath in its entire length. The first step of the operation is now completed and the sutures can be easily and quickly applied. The recti are so brought together that their median margins are directed toward the abdominal cavity, similar to a Lembert suture. The needles are not to be too pointed, but strong, and the suture-material should be soft, flexible, silver wire or silvered alumin-bronze wire. The needle is inserted at the lateral margin of the rectus, glides along the posterior surface of the belly of the muscle, and between the latter and the inserted finger; then between it and the posterior sheath of the rectus; it then takes the median direction and again emerges through muscle and anterior sheaths between the middle and inner third. Similar stitches are now taken on the opposite side. Superficial sutures embracing fascia and muscle are then applied. The operation is completed by a short drain on each side and closure of the skin wound.

William Bennett²² states that in the

operation for omental hernia certain symptoms may occur subsequently. Whether the symptoms come on immediately after operation or whether they arise at the end of ten days or a fortnight, the first thing to be dealt with is the distension of the belly. When vomiting is co-existent,—as is generally the case,—a large enema containing turpentine is generally effectual. One should not rely upon the long rectal tube, as it is rarely of much use. If the patient is not vomiting, by far the best plan is to give a large dose of castor-oil with 15 drops of laudanum; this is better than the frequently repeated doses of salines (e.g., sulphate of soda). If care is taken to secure a free evacuation of wind or feces, soon after the abdominal operation, the surgeon will always save himself and the patient a great deal of trouble, and sometimes avoid a serious complication or disaster.

Vomiting without distension is of little moment; vomiting with distension is of momentous gravity. The indication in such circumstances is the treatment of the distension, and not of the vomiting. If the distension can be relieved, the vomiting instantly ceases, and no treatment applied with a view to the arrest of the vomiting will save the patient if distension is unrelieved. Of course, vomiting following the administration of an anæsthetic is not being discussed.

If the distension progresses beyond a certain point, paresis of the gut follows, which will lead to meteorism, and, if meteorism occurs in these cases, the danger to life at once becomes an objective factor which at times requires no ordinary skill in its management.

²² Clinical Jour., Aug. 7, 1901.

NEPHRITIS.

Complications.—J. J. Pringle²³ says the following convenient classification of skin eruptions in Bright's disease has been suggested by Thursfield:—

1. The affections which characterize (or may arise in) the early stages of renal disease: pruritus, urticaria, eczema.

2. Those which occur in the final stage and in uræmic conditions: the universal erythematous, bullous, or desquamative eruptions.

3. Purpura and other hæmorrhagic eruptions.

4. Those affections which are seen only with marked œdema.

Pruritus may present all degrees of severity, from a mere occasional localized itching, often about the legs, to an intense and unceasing torture, in which the patient literally tears himself to pieces. Sometimes the sensation is an almost pleasant one of tickling or a formication.

Urticaria is rare, and even doubted by many. Merck, however, considers it nearly as common as pruritus, which it usually precedes, the wheals subsiding as the pruritus becomes established.

Although many physicians think that some form of kidney disease or "renal inadequacy" underlies many cases of eczema, those who have given most serious attention to the point have almost unanimously come to the opposite conclusion. Thursfield writes: "There is nothing, in my opinion, to show that eczema is more common in patients suffering from albuminuria than in others"; and Pye-Smith: "I am not satisfied as to eczema ever being due to Bright's disease, but elderly people are specially liable to both."

A considerable number are instances of pruriginous and scratched skin, the

"eczema" being secondary and accidental.

Erythema papulatum uræmicum is the most characteristic and interesting skin affection the association of which with Bright's disease is most clearly established.

The eruption consists of numerous large papules or nodules with a red areola arising upon an erythematous base; its color is at first vivid crimson, and disappears on pressure, but subsequently becomes deeper in tint, violaceous, or even hæmorrhagic. It frequently makes its appearance on the extensor surfaces of the hands and feet, heralded by a slight rise of temperature. In a few days the papules subside, and the rash spreads over the whole surface of the body, including the face, as a dark, erythematous condition. In about a fortnight desquamation ensues in the form of small, branny flakes, in thin scales like exfoliative dermatitis, or in long thin strips especially on the hands, leaving cracks, with oozing of blood and serum (Bruzeliuss). Occasionally vesicles or blebs form, and a pseudo-eczematous condition results, with much weeping and scabbing. Itching is usually slight. As a rule, the eruption disappears, but it is, nevertheless, a symptom of the utmost gravity; uræmic convulsions almost invariably follow it, and death usually ensues within five or six weeks of its first manifestation.

Interstitial nephritis is, in a great preponderance of cases, the form of Bright's disease which gives rise to this eruption. But a small proportion of cases occur in the chronic tubal form.

Generalized bullous eruptions are so rare in the course of Bright's disease that it is more than doubtful if any

²³ Practitioner, Nov., 1901.

etiological relationship can be established between them.

General exfoliative dermatitis (pityriasis rubra) may be attributed to chronic nephritis in a certain number of cases. It usually develops toward the end of the case, and, as a rule, greatly aggravates the prognosis.

Hæmorrhages into various tissues are so common in Bright's disease, especially in interstitial nephritis, that it is not remarkable that purpura should be a frequent occurrence. It most commonly appears upon the lower extremities, even when there is no œdema, and in the form of small, numerous petechiæ, very rarely of large ecchymoses. It is more often associated with epistaxis than with any other form of hæmorrhage, and is often an accompaniment of uræmic convulsions.

Boils, carbuncles, and ecchymatous lesions are also common, as in diabetes.

According to T. B. Hyslop,²⁴ any defect in the renal system associated with arterial degeneration and a tendency to cardiac failure is apt also to be attended by brain-failure.

Renal disease, therefore, is associated with insanity in two ways: (1) acute transient delirious mania, an acute toxæmia, or uræmic insanity; (2) a progressive cerebral degeneration, with chronic renal disease as the primary cause. In this type the mental symptoms during the earlier stages vary from a mild dementia to mania or delirium. In due course, however, complete dementia results, not unlike paralysis of the progressive type known as general paralysis of the insane.

In some cases the spinal symptoms become marked, and changes in the spinal cord are found after death.

The dyspnœic and gastro-intestinal forms of uræmia are sometimes seen in

the insane, but it is with the comatose and convulsive types that asylum physicians have chiefly to do. Out of 3000 cases admitted to Bethlem Royal Hospital since the year 1888, 172 had albuminuria on admission (or 5.7 per cent.); of these 172, as many as 40 (or 23 per cent.) recovered from the mental attack; of the remaining 132, 37 died of general paralysis and 20 of senile dementia, and the remaining 75 became incurables. On careful analysis of the details of these 172 cases is to be noted the comparative frequency of such symptoms as inequalities of the pupils, tongue-tremors, alterations and defects of speech, sluggishness or exaggeration of the knee-jerks, and not infrequently hemiplegias, or other symptoms of arterial and cerebral degeneration. The cases diagnosed as general paralysis appeared to have been of three types: (1) parasymphilitic types which correspond most closely to the classical descriptions of general paralysis; (2) types of cerebral degeneration due mainly to vascular changes consequent upon kidney disease; and (3) types of associated mental and motor defects in which the kidney disease is merely coincidental, the mental and motor symptoms being due to other factors, such as sun-stroke, malaria, and post-febrile and toxic states.

Pathology. — G. E. Davis²⁵ says in Bright's disease the texture of the kidney is so changed as to modify or suspend its function, which is to eliminate the toxins from the blood brought to it by the renal artery and returned purified through the renal vein, while the waste passes off through the uriniferous tubules. The cardiovascular change of

²⁴ Practitioner, Nov., 1901.

²⁵ Med. Record, Nov. 2, 1901.

Bright's disease is one of degeneration, and results in a weak heart and soft, compressible pulse, which must not be confounded with the rigid, wiry pulse of arterioscleroses, which often complicates the incipient stages. Dropsy is influenced by three conditions: Albuminuria, by withholding the globulin of the red cells, causes anæmia and hydræmia. The capillaries altered by inflammation or lack of nutrition are more permeable, especially by the diluted blood. Vasomotor weakness due to in-nutrition favors exudation and retards absorption. Uræmia is a mixed form of poisoning, no single element accounting for all the symptoms.

Diet.—L. L. Solomon²⁶ remarks that, in the treatment of a given case of so-called Bright's disease, it is always essential to manage the acute exacerbations which will occasionally occur in the course of this disease. Second, to relieve the kidneys of all possible over-work—on the one hand, by a careful regulation and supervision of the habits of life, the diet, clothing, baths, exercise, sleep, stool, etc.; and to restore and preserve the proper excretory function of the organ—is an all-important duty. Third, one should remember the presence or absence of albumin in the urine is not all of Bright's disease, though the case can often be approximately measured and the prognosis fairly estimated and gauged by this important adventitious ingredient.

It is not sufficient to instruct the patient to avoid condiments and highly seasoned foodstuffs, or viands, nor to restrict the amount of meat and institute a skim-milk diet, or some other plan, but the whole dietary and habits of life must be interpreted for the patient. Ordinarily it is wise to restrict the meat diet, allowing only white meat

in small quantity, with fish; also soups, broths, gruels, and fruits in abundance, but no greater error can be committed than to compel the patient to adopt a fixed inflexible diet. Frequent good results from the administration of fats, which not a few of the cases can readily digest and assimilate.

Treatment.—W. H. Broadbent²⁷ states that the first indication to be derived from the cardiovascular conditions resulting from renal disease is immediate and free venesection on the occurrence of uræmic convulsions. Sixteen or twenty ounces of blood should be taken at once, followed by a calomel purge. If a single withdrawal of blood does not stop the convulsions it may be repeated and recurrent uræmic convulsions may be met by further venesection. In acute tubular nephritis bleeding on account of convulsions may be followed by immediate and remarkable improvement.

A further indication for treatment may be deduced from the fact that the damage to the vessels and heart through which much of the suffering attending renal disease is brought about, and by which life is shortened, is due to high arterial tension. The reduction of the intravascular pressure ought to be an object continually held in view. For this purpose the vascular relaxants have been tried: nitroglycerin, the nitrites, and the tetranitrate of erythrol. Unfortunately the effect of these substances is very fugitive; but the last named, which is slower and more persistent in its action, may sometimes be given with advantage. The best means personally known of exercising a definite influence on unduly high intra-

²⁶ Amer. Pract. and News, Oct. 1, 1901.

²⁷ Practitioner, Nov., 1901.

arterial pressure is through mercurial aperients. A dose of calomel, 3 to 5 grains, will often avert impending convulsions, or prevent their recurrence; will relieve the headache, stupor, and twitchings, and may prevent uræmic paroxysmal dyspnoea in advanced kidney disease. So also a single grain of pilula hydrargyri or hydrargyrum cum creta, with rhubarb or colocynth and hyoscyamus, once, twice, or three times a week, according to the degree of tension in the pulse, exercises a favorable influence in the early stages of chronic Bright's disease, both on the symptoms and on the course of the disease.

There can be no question, J. W. Cousins²⁸ thinks, as to the value of the relief of renal tension by surgical means; at the same time it is quite evident that suitable cases for the treatment have yet to be defined. It is not likely to benefit in the tension caused by chronic urethral, vesical, and renal diseases; but rather in those forms which are associated with disorders of the system in which the kidney fails to excrete toxins and microbic products from the blood, and in acute cases of nephritis in which life is seriously threatened. There must be a limit to surgical interference, and one can hope for little success when the heart and other organs as well as the kidneys have undergone degenerative changes, and the vitality of the whole system is greatly impaired.

Reginald Harrison²⁹ considers that the following may be regarded as some indications for relieving tension surgically in cases of nephritis, however arising: (1) progressive signs of kidney deterioration, as shown by the persistence or increase of albumin when it should be diminishing or disappearing from the urine, as in the natural course of inflammatory disorders ending in resolu-

tion; (2) suppression of urine or approaching this state; (3) where a marked disturbance of the heart and circulatory apparatus arises in the course of inflammatory renal disorders.

The patient being anesthetized and placed in the position for a lumbar nephrotomy, the kidney is exposed by an oblique incision through the loin about parallel with, and a little lower than, the last rib. The length of the incision varies relative to the consistence of the patient and the individual connections of the kidney to be searched. In spare subjects an incision of three inches probably suffices. The various musculo-fascial layers are divided until the suprarenal fat is seen. The connective tissue covering this should be opened up with probe and forceps, when the kidney may be recognized, help being rendered by an assistant pushing up the organ in the direction of the operator. There is seldom much bleeding or even necessity for tying a vessel.

If the organ is to be further explored,—as, for instance, for a possible stone,—the kidney may be withdrawn through the wound for more thorough examination with the finger. This, however, is not necessary where tension alone exists. Sufficient prominence for a limited incision through the capsule so as to relieve tension and secure drainage, or even to puncture the organ, as for renipuncture, can be given by an assistant in the way already mentioned.

In incising the capsule of the kidney for relieving tension, it is personally done along the convex border. Occasionally the incision may be indicated

²⁸ Brit. Med. Jour., Oct. 19, 1901.

²⁹ *Ibid.*

to one side or other of the free border, as congestions and extravasations of blood are not necessarily evenly disposed throughout. Punctures may be made almost anywhere where the engorgement seems greatest, but it is well to avoid the pelvis of the organ either in the case of these or of incision. Frequently there has been seen, on puncturing the capsule for the purpose of exploring, blood spurt out in jets, as if projected under considerable contractile pressure, and eager to escape.

The desired object being effected, a drainage-tube is carefully inserted so as to remain in contact with the kidney, and the wound is closed around the rubber outlet with silk sutures. The incision is dressed with gauze antiseptically.

As drainage is an essential part of the process and may be continued for some days, or even weeks, before the tube is removed, an ample supply of absorbent dressings should be used and renewed as often as is necessary. The drainage-tube usually remains *in situ* from a week to ten days. On the removal of the drainage-tube the wound usually heals rapidly.

R. C. Chicken³⁰ says that, the circulation of the kidney being in close relationship to the circulation of the perirenal tissues, renal tension can be adequately relieved by scarification of the lumbar region. The opening of the kidney capsule for simple relief of high arterial tension is to be deprecated.

In speaking of the surgical treatment of acute nephritis, an editorial³¹ says that, of 25 cases, there was an unfavorable result in 4; 3 proved fatal through uræmia several weeks after the operation.

Pousson's study of the literature and own experience led him to give a rather

favorable prognosis for the future of such operations.

The surgeons incline to advocate either division of the capsule of the kidney or even of the parenchyma of the kidney itself in certain cases of acute nephritis. Operation is advocated only in cases in which there is anuria, very severe pain, or marked hæmaturia. In these cases internal treatment is powerless, and surgical intervention may prove of some avail.

X-RAYS IN MEDICINE.

William Rollins³² concedes that the most important discovery to be made in x-light tubes is to find how to keep the character of the light constant. Meanwhile the best way to excite an x-light tube is to use surges of millions of volts and many horse-power, each surge lasting for not more than a millionth of a second.

There are two methods in use for protecting sensitive plates in making photographs by x-light. The plates are wrapped in colored paper, or the ordinary wooden photographic plate-holders are used. Both methods are undesirable, for an x-light tube fills a room with a bright though invisible light, which, dashing about in every direction, fogs the plate or even makes images on it of objects on the opposite side from the body being photographed. No x-light should reach a plate except what comes through a patient being photographed. A first requisite in an x-light plate-holder is a means to achieve this: (2) the plate-holder should bear the weight of a patient without risk to the

³⁰ Brit. Med. Jour., Oct. 19, 1901.

³¹ Amer. Med., Nov. 9, 1901.

³² Boston Med. and Surg. Jour., Apr. 25, 1901.

plate, even though it is necessary for him to sit on it; (3) it should be thin to avoid discomfort to the patient when he lies on it; (4) it should be moisture-proof to protect the plate from perspiration. For several years metal plate-holders have been personally used which meet these and other requirements. The latest and simplest plate-holder has a total thickness of seven millimeters. It is in two pieces, a back of non-radiable, a front of radiable metal (aluminium), held together by steel clamps.

Mihran K. Kassabian³³ says that the Roentgen-ray diagnosis in forensic medicine is of inestimable importance and value to the physician, the patient, and the jurymen. The accuracy and reliability of the Roentgen-ray method have been carefully demonstrated, and the diagnosis is admissible when made by a competent physician or surgeon.

Espina y Capo³⁴ draws attention to the value of the x-rays in demonstrating glandular tuberculosis. The tachycardia, which is recognized as important in the early diagnosis of tuberculosis, is found not to be rhythmical. The diaphragmatic excursion also is made visible, and gives valuable information. The small size of the tuberculous heart can also be noted. The modifications in the position of the clavicle and of the scapula, as well as the peculiar shape of the intercostal spaces, are also seen.

In regard to the diagnosis by the x-ray of pulmonary abscess, gangrene, and bronchiectasis following pneumonia, D. E. Eisendrath³⁵ says that much was hoped for, but the results have not been gratifying. Its value is only relative, and a shadow may be obtained in a thickened area quite distant from the actual seat. It is no certain guide to the focus, or whether there are one or several foci. Nevertheless, if it

is possible, it should be used as a matter of routine, as it may be of some value. In a recent article by Tuffier, he quotes 8 cases which were examined with the x-ray by him. In 5 of these the pictures showed a distinct shadow at the seat of the focus. In 1 of the cases (bronchiectasis) the physical signs pointed to a cavity higher up than the shadow in the picture, but the latter proved to be correct, and he was obliged to operate at a lower point. In another case the shadow was a little higher than the focus. In 3 cases the radiograph was of no value. In 1 the shadow was in the lower, but the focus in the upper lobe. In a second a cavity the size of an orange gave no shadow. In a third the shadow of the heart obscured that of the lesion in the lung. Other authors report similar experiences, so that one may now regard it as an aid of diagnosis, but not as a final proof of the seat of the lesion.

Bonnet-Leon³⁶ has made more than 600 observations. By the employment of the fluorescent screen he was able to make a precise diagnosis of tuberculosis in 98 per cent. of the cases even at the commencement of the disease. In the very earliest stage a diagnosis could be arrived at by observing the diaphragm and the inspiratory muscles. Anomalies in the synchronism or the amount of displacement of the two halves of the diaphragm, one might almost always diagnose a predisposition to tuberculosis or a commencing tuberculosis. In this way a number of persons apparently in

³³ N. Y. Med. Jour., Nov. 9, 1901.

³⁴ Boston Med. and Surg. Jour., Aug. 29, 1901.

³⁵ Phila. Med. Jour., Nov. 9, 1901.

³⁶ Boston Med. and Surg. Jour., Aug. 29, 1901.

good health had become suspected, in whom some months or years afterward unmistakable evidence of disease had manifested itself.

Walsham³⁷ says that the Roentgen rays can show definitely tubercle in the lung, but the very earliest stage in the development of the tuberculous process cannot be detected by the x-rays. However, one is justified in saying that the x-rays are able to diagnose early tuberculous change in the lung. The Roentgen rays can detect tubercle certainly as early as the stethoscope.

Béclère³⁸ advises that the observer should increase his sensibility to the light by remaining some minutes in the dark before making a radioscopic examination. Tubes furnished with a vacuum regulator are preferable to others. It is equally indispensable that the tube should be easily moved, and it is necessary to be able to restrict at will the divergent bundle of Roentgen rays, so as to confine the surface illuminated by the screen. To this end a disk of lead with a variable aperture has been constructed which is a simplification of the iris-diaphragm of microscopes.

In radioscopic examination one commences by taking a general view of the thorax by enlarging to the maximum the opening in the diaphragm, then the tube is pulled out so that the normal ray of incidence traverses the apex of the chest, then the opening of the diaphragm is narrowed until no more can be seen on the screen than the supra-clavicular region of the two lungs. Last, one varies the electrical resistance of the tube, and consequently the penetrating power of the rays, so as to obtain the greatest contrast possible between the clear and the obscure parts in the radioscopic image.

According to C. Mansell Moullin,³⁹

the results obtained by Roentgen photographs may, so far as calculi are concerned, be regarded as final and conclusive for all ordinary cases. Unless there is some unusual difficulty, such as an abnormally stout abdomen, or, as in one of personal cases, an extreme lumbo-dorsal curvature, displacing and burying the kidney, the Roentgen rays can be relied upon to give definite and accurate information not only as to the existence of a calculus, but as to its size, its exact position, and whether there are other calculi present either in the same or in some other part of the urinary tract. The best results are obtained with calculi composed of oxalate of lime, as these absorb the rays to a much greater extent than others, but even concretions of phosphate of lime can be made to throw a distinct shadow, unless they are so minute as to be of no practical importance, and a negative result can be relied upon as much as a positive one. If no calculus is shown after a second examination, repeated under varying conditions, it may be taken as certain that there is no calculus there.

When the stone has left the kidney and is passing down the ureter the condition of the patient, as a rule, is such that quiet examination is not possible. In one case, however, in which the course of the stone was temporarily arrested just below the brim of the pelvis, definite information was obtained both as to its presence and its exact locality.

Under ordinary circumstances the Roentgen rays are not required in cases of vesical calculus, but in many of these

³⁷ Boston Med. and Surg. Jour., Aug. 29, 1901.

³⁸ *Ibid.*

³⁹ Lancet, Jan. 19, 1901.

cases the prostate is so large that the ordinary methods of examination are useless. But with the Roentgen rays there is no difficulty, as they will prove within the course of a few minutes whether a calculus is present or not, no matter what may be the size or shape of the prostate or how distorted the bladder. (The patient must lie upon his back, as the prone position is only suitable for movable calculi.)

There is no need for any exceptional apparatus. It is usually recommended that the tube should be one of low vacuum, as the object is to obtain differentiation rather than penetration. In order to insure shortness of exposure under these conditions the wattage of the secondary circuit must be high and the amount of the discharge sufficiently large. For this reason a coil giving a 10-inch or 12-inch spark answers better than a static machine. But excellent results have been obtained, even in the case of the kidney, by very short exposure with a decidedly hard tube; and where the patient is very stout the tube must be hard. What is important is not to obscure the differentiation obtained in the first few minutes' exposure by allowing too much penetration subsequently. The bowels must be cleared out thoroughly. All clothing containing foreign bodies likely to cast a shadow must be removed from the area to be examined. As a rule, the patient should be placed in the recumbent position, with the plate supported by a stout board beneath him, and an aluminium screen between the body and the tube. If it is wished to take a sciagram of the whole urinary tract at once, the plate must be large enough to reach from the last dorsal vertebra to the lower part of the pelvis: but it is often better, when there is any doubt, to take

two exposures: one of the kidneys and the upper part of the ureter, and the other of the lower part and the bladder.

One of the chief difficulties is the patient's breathing. The kidneys move up and down during even tranquil respiration to a much greater extent than is usually believed. The plan recommended by Mr. Mackenzie Davidson of making the patient hold his breath with the thorax fixed in a certain predetermined position, for short periods, at frequent intervals, and only allowing the exposure to take place at those periods, answers fairly well, but requires a very careful patient. A more satisfactory plan is either to direct the patient to take very shallow breaths, or, better still, to put a firm bandage around the abdomen. This fixes it in a position of expiration, and has the additional advantage of slightly raising up the opaque mass of the liver. Distension of the bladder with air in the case of a fixed vesical calculus is certainly of use, and, provided the air is sterilized first and due regard is paid to the sensations of the patient, it may be practiced with no more danger or unpleasantness than that which attends the process of washing out of the bladder.

The negative must be allowed to dry before any conclusion is drawn, and, if there is any doubtful spot, should be intensified with corrosive sublimate. Unless everything is certain, a second examination should be made after a few days' interval, and if there is any doubt then, a separate exposure should be taken of the area in question, a leaden plate with a circular opening exactly opposite the anode being interposed between the tube and the patient, so as to cut off as far as possible all extraneous rays and obtain a better-defined shadow.

Malcolm Morris⁴⁰ states that, in estimating the prospect of a cure by means of the light-treatment in a given case of lupus, a number of circumstances have to be taken into account. Cases that have not been treated are, other things being equal, the most suitable for the light-method. In old cases in which the patients have suffered many things from many physicians, the seat of disease is likely to be so deeply scarred by the cauterizations and scrapings it has undergone as to be almost impenetrable to light. If the disease is recent, if there is no scarring or thickening, and if the configuration of the part is such that the pressure-glass can be accurately applied to it, there is every reason to look for a thoroughly satisfactory result. If the disease is extensive, the treatment must at the best be tedious. It should be applied daily on six days a week, if there is nothing—as, for instance, excessive reaction—to make interruption necessary. In cases where there may be a special urgency, the treatment may be carried out twice a day without any ill effect.

The success of the light-treatment depends more on the attendant who has the actual management of the details than on the doctor who has the supervision of the case.

Another condition of success is in the patient himself, to whom the absolute passivity enforced during an hour or an hour and a half daily is apt to be exceedingly irksome. And he must continue to submit to this restraint for months together.

As regards the time required, it may be said, in general terms, that in an extensive case, in which, for instance, the disease involves both sides of the face, a year, with intervals of rest, will be required.

The x-rays have been personally used in three cases of very advanced rodent ulcer with great excavation. The result in all was a complete cure. The x-ray treatment is, according to Schiff and Freund, of Vienna, indicated in (a) lupus vulgaris, mycosis of the skin, etc.; (b) hypertrichosis, sycosis, favus, folliculitis, furunculosis, acne, etc.; (c) lupus erythematosus.

A. B. Blacker⁴¹ says that, with Finsen's rays, reaction on the skin occurs in from 4 to 24 hours, in x-rays in from 4 to 24 days; the first is comparatively slight and easily controlled, and the second sometimes severe, and an ulcer may be produced which lasts for months. The reaction is more severe in fair people, in those who suffer from an irritable skin, and in neurotic individuals. The action of the x-rays on lupus vulgaris is very often marked and is apparent after a few applications; sometimes, however, it is slow. In the removal of superfluous hairs the action of the x-rays is doubtful, as in all the cases personally seen in which the hair had been removed it had returned within the following six months. It may be found useful in tinea tonsurans. The difference between the action of rays from the violet end of the spectrum as employed with Finsen's apparatus, and the rays emanating from an x-ray tube are very marked; they differ in the reaction produced on the skin, in their penetrative power, in their mode of production, and in their employment. As regarded the rays, either from the sun or from the electric arc lamp, the results obtained in the treatment for lupus were sure and they gave excellent results. On the other hand, much more

⁴⁰ N. Y. Med. Jour., Oct. 19, 1901.

⁴¹ Brit. Med. Jour., Sept. 28, 1901.

must be proved before the x-ray can be considered as being safe or reliable.

G. B. Batten⁴² has found x-ray treatment excellent and quite painless if no dermatitis is caused. With care this can be quite prevented except in rare instances of idiosyncrasy. One should never use a tube except with a blue cloud in front of the anticathode, and not one with the blue cloud behind the anticathode. A soft tube gives similar results, but is more dangerous. Enough current should be maintained: that is, a heavy discharge tube should be used. It is believed that the Finsen and x-rays, and also the high-frequency current, acted by overstimulation of cells.

Norman Walker⁴³ thinks one of the most satisfactory features is the success which attends the x-ray method in diseases which are extremely obstinate to other forms of treatment. In favus the results are unapproached by any other method. It is especially suited for those wide-spread distressing cases of lupus which are practically social lepers. In sycosis, too, it surpasses any other remedy in efficiency. Not all cases are suitable, but certainly many which have proved utterly obdurate to other forms of treatment have done remarkably well with this.

The removal of superfluous hair by a combination of x-ray exposure and electrolysis is recommended by David Walsh.⁴⁴ In one case reported by M. Barthélemy and M. Darien the hairs grew again in a guinea-pig that had been depilated thirteen months previously by a prolonged exposure to the focus-tube. Freund finds that the hair grows again on the face two months after depilation by that method. By applying the rays, however, three or four times every six weeks it is possible, he says, to keep the face permanently

hairless. The ideal exposure, however, in depilation is that which suffices to cause the shedding of the hair with little or no apparent erythema or dermatitis. The part of the face around the area to be cleared should be protected with a mask of lead-foil. The drawbacks of depilation by the focus-tube, then, are the risk of dermatitis (a small one under modern methods and in skilled hands) and, above all, the regrowth of the hair.

A combination of the two methods of focus-tube exposure and electrolysis is of advantage. The following method is useful where the growth is not too thick. The exposure of the focus-tube is made in the ordinary way and a week or ten days later, when the hair becomes loose, each hair is extracted and the electrolysis needle is passed into the follicle. This method means that a large number of electrolytic punctures must be made in a small area. However, with a little management the removal may be made to extend over a couple of days, and in that way it is possible to remove, so to speak, alternate hairs. Sometimes a second exposure to the focus-tube is needed before the hairs become loosened.

H. P. Towle⁴⁵ concludes: (1) that the real nature of the x-rays is not yet determined definitely, nor whether the therapeutic action following their use is due to the action of the rays themselves or of something of electrical origin accompanying them; (2) that the treatment is not without danger, unless the greatest care is used; (3) that the effects of the x-rays remain for a long time, and recovery is very slow; (4) that

⁴² Brit. Med. Jour., Sept. 28, 1901.

⁴³ *Ibid.*

⁴⁴ Lancet, Nov. 2, 1901.

⁴⁵ Boston Med. and Surg. Jour., Apr. 11, 1901.

whatever may be the exact origin of the effects produced, a definite reaction is caused in the skin by the use of the x-rays; (5) that the changes induced in the skin are similar histologically to those seen in ordinary inflammation; (6) that the x-rays are not proved to have any bactericidal power; (7) that their therapeutic effect is probably due to the inflammation excited; (8) that hair can be removed by their use, and that lupus and several other diseases can be healed over; (9) that in a few reported cases

one may fairly assume that a permanent cure has been effected, but that in a majority of the reported cases too little time has elapsed to rule out the possibility of a return of the disease; (10) that the effect of exposure to the x-rays is so extraordinarily slow in disappearing that months should elapse before an absolute cure is assumed; (11) that, while the permanency of the cure effected may perhaps be doubtful as yet, it is certainly desirable to experiment further.

Cyclopædia of Current literature.

ARTERIOSCLEROSIS.

Treatment.—In treatment much depends upon a regular habit of life. These patients should avoid emotional strain. Exercise should be regular, but not excessive. Alcoholics and tobacco should be interdicted. Above all, the food-supply should be reduced to a diet which secures metabolic equilibrium; but nothing should be taken beyond this. The interdiction of meats on the theory of a uric-acid diathesis is false; but patients should be given a due proportion of proteids, carbohydrates, and fats. It is possible to obtain from milk and eggs all of the nitrogen that is needed; if these agree with the patient, he may obtain them from this source; but there is no evidence that they are better than meat. The chief difficulty is in reducing the total quantity of the food in liberal feeders to an amount required for the nutrition; on such a diet the patients often complain that they are being starved.

The medicinal treatment in the complicated cases depends upon the underlying conditions. Before there has been

extensive damage to the vital organs the treatment must consist of a recognition of the cause; if faulty nutrition, this must be corrected by diet; if toxæmia is present an effort must be made to eliminate. If syphilis is recent, a vigorous antisymphilitic course must be instituted.

Temporary relief may be obtained with nitroglycerin. Large doses can be taken without disagreeable symptoms. The dose is to be regulated by the idiosyncrasy of the patient. Iodide of sodium in small doses, 5 to 7 grains three times a day well diluted, continued for months, has been useful, but no medicinal treatment is of avail without careful attention to the personal hygiene of the patient. H. N. Moyer (*Medicine*, Oct., 1901).

Digitalis is always a dangerous drug in arteriosclerosis; cactus and valerian are much more useful without the attendant risk. When digitalis has to be used, Merck's digitalin is personally preferred. Morphine may have to be employed in cases where pain becomes the most prominent symptom. The main

indication is to treat the patient's general condition. The diet must be carefully regulated, all sources of worry must be removed, gentle exercise must be insisted upon, and, where a heart-compensation has failed, the patient must be put to bed. In these cases the use of resisted movement, as employed by Schott at Nauheim, is of very great importance. Better than digitalis or any other of the supposed heart-stimulants is *nux vomica*. If it is desired to produce the same effect by hypodermic medication strychnine should be employed. Delancey Rochester (*Med. News*, Nov. 2, 1901).

Persons suffering from beginning arteriosclerosis should not be without occupation. If the condition known as lithæmia, or masked gout, develops, and the patient is leading a very active life, he may have to change his occupation. The key-note of success in the management of arteriosclerosis cases in their primary stage is specific control of the amount of exercise to be taken and absolute regulation of the diet. If the patient has been accustomed to alcohol for a good while and a certain amount of stimulation seems necessary, then he should be limited to the use of whisky. While the amount of food taken must be limited, limitation must not go to such a degree as to cause impairment of nutrition. Loss of weight is a bad sign. Instead of limiting the diet too much there should be an increase of excretion by the emunctories. For this blue pill and salines should be taken symptomatically.

Gray powder and quinine—of each, 3 grains—should be taken at intervals of three weeks to a month. Between-times the bowels should be kept open by means of Carlsbad salts or sodium phosphate.

In the second stage all violent exercise should be avoided. There should be a simple, nutritious diet and no overloading of the stomach. Acute dyspeptic attacks are best relieved by purgatives. For the feelings of discomfort that develop in the precordial region the nitrites give transient relief and nitroglycerin for a little longer. The use of these remedies should not be continued over long periods. Iodine and its salts are said to be the drugs of arteries. Five to 15 grains of an iodide three times a day render blood-pressure lower and more constant and do not allow it to be easily disturbed by reflex irritation. Potassium iodide is most depressing, and should not be given whenever there is cardiac insufficiency already existent. Hydriodic acid is the least depressing, and serves best whenever there is gastric irritability. It may be given in the syrup of hydriodic acid in doses of 2 to 4 drachms three times a day.

All heart-stimulants should be used carefully. If heart-compensation is good, digitalis is contra-indicated. In failure of compensation this is of great value. It should be given for a week, or even for a month if needed. Small nightly doses three or four times a week serve to keep up the heart-nutrition. Iron and codliver-oil should be given freely, and, in general, nutritive remedies employed as soon as any retrograding of the general condition is noted. Egbert le Fevre (*Med. News*, Nov. 2, 1901).

ASTHMA.

Etiology.—Three factors are required for the production of asthma. These are called the "asthmatic tripod," as follows: (1) a vulnerable area of mucous membrane; (2) an abnormally sensitive

nerve-center; (3) an external irritant or exciting cause. If all these three factors are present at any one time, one will have an attack of asthma. No two of them can produce an attack; all three are required. If one of them is removed, the attack of asthma will not return. The first factor for the production of asthma may be situated in the nose, naso-pharynx, pharynx, larynx, or bronchial tubes. The various names given to the different varieties of asthma are derived from the locality of the vulnerable area of mucous membrane. The second factor may be either inherited or acquired. The neurotic element in asthma has been observed by all writers. Uric acid, oxalic acid, and the oxalates may produce abnormal nerve-centers. The third factor is difficult to determine in some cases, as there are a number of irritants and exciting causes. John North (Amer. Med., Oct. 5, 1901).

Passiflora Incarnata in.—Passion flower (*Passiflora incarnata*) possesses hypnotic and antispasmodic powers, and in sufficient dosage it would probably act as a narcotic poison. Even in moderate doses it may in some cases provoke nausea and emesis. The combination of relaxant influences gives it peculiar value in allaying asthmatic paroxysms and in preventing their full development. It may be given in tincture or fluid extract. The dose is from 10 to 30 minims well diluted and given from every ten minutes to every half-hour until relief is experienced, emesis caused, or drowsiness induced. Half a fluidounce of the fluid extract has personally never been exceeded in the course of two hours. Patients have fallen asleep after six doses of 10 to 20 drops each, given every ten or fifteen minutes, or after a single dose of 1

fluidrachm. In 2 out of 8 cases its use produced but slight mitigation of distress and was abandoned. In 6 cases rebellious to other methods it gave prompt relief. S. Solis-Cohen (Amer. Med., Sept. 14, 1901).

BONE, A NEW CONSTITUENT OF.

A newly-discovered substance, osseomucoid, is practically the same as the mucoid in tendon, cartilage, and other connective tissues. It not only responds to the general proteid tests, but appears to have the same solubilities and precipitative reaction as the other connective-tissue mucoids, and yields the same large proportion of reducing substance on decomposition with mineral acids. Furthermore, the combustion equivalents of osseomucoid, chondromucoid, and tendomucoid are practically identical, indicating close chemical relationship of these gluco-proteid products.

This discovery makes it evident that ordinary compact bone, like the other forms of connective tissue, contains mucin substance, and also, contrary to Young's deduction, that in the process of ossification the connective-tissue matrix is not completely removed. Further, it makes it easier to understand the accumulation of mucoid in various pathological formations in osseous tissue which numerous observers, in recent years, have shown may often be considerable in amount.

The influence of disordered metabolism of this mucoid substance on the development of various bone-tumors, particularly of the myxomatous type, can only be guessed, at present, but may prove to be more pronounced than now supposed. W. J. Gies (Amer. Med., Nov. 23, 1901).

BURNS, INTERNAL LESIONS IN DEATH FROM SUPERFICIAL.

The points to be emphasized are these:—

1. The entire pathological picture presents great similarity to the conditions found in the disease characterized by the presence of toxins of bacterial origin in the blood.

2. Damage to the lymphatic tissue is a constant feature, but is not necessarily focal, some cases presenting only diffuse degeneration. The cases which live but a few hours after infliction seem more likely to present a focal condition than those which live a longer time, as the condition which is personally interpreted as proliferation and phagocytosis is one which may rapidly disappear.

3. The focal lesions are not a true necrosis, but rather a proliferation of the endothelial cells of the reticulum and the capillaries, and a phagocytosis by the leucocytes and endothelial cells, to which latter is due the fragmented, disintegrated appearance which suggests a true necrosis. John McCrae (*Amer. Med.*, Nov. 9, 1901).

COLOR-BLINDNESS, TEST FOR.

For the detection of defects in the color-sense wools of various hues are made use of, the method devised by Holmgren being the one in most general use. A number of skeins of wool comprising different shades of green, red, and their confusion-colors (gray and brown) are placed before the patient, who is given a skein of green-colored wool. This is called the test-skein, and he is required to pick from the pile of wools in front of him the skeins of the same *color*, not the same *shade* as the one he holds in his hand. If there is any defect in his color-vision the patient will select a number of the confusion-

colors (chiefly grays), with perhaps some green tints. If he accurately chooses all greens the investigation need proceed no further; he has normal color-sense—is not color-blind. If, however, he fails in this he is now given a rose-colored skein, and again told to choose skeins of that color. He is now likely to match the rose with browns, purples, dark grays, or even greens. Finally he is given a deep-red skein, when he will choose the dark browns and greens. The great majority of color-blind people are defective in red and green, and are said to have red-green blindness, although all varieties, from simple green to total color-blindness, exist. With this test it is almost impossible for one who is color-blind to escape detection. Congenital color-blindness is more common in men than in women, being in the proportion of about 4 per cent. in the former and about 1 per cent. in the latter. The defect cannot be overcome, but frequently a color-blind individual is able to distinguish to a certain degree the various colors, although he does not see them as such.

Acquired color-blindness is due to some organic changes in the optic nerve or visual centers, as seen in toxic amblyopia, hysteria, optic-nerve atrophy, and other conditions. C. A. Wood and T. A. Woodruff (*Med. Standard*, Nov., 1901).

CORNEA, EXAMINATION OF, IN YOUNG CHILDREN.

In young children where much difficulty is experienced in examining the cornea the child should be laid across the nurse's lap in such a way that its legs are between her body and left arm, her right hand being free to control the child's hands. The examiner sits opposite with a towel or rubber sheet across

his lap and places the child's head between his knees. In this way the child is prevented from kicking and struggling, and its head is held steady, leaving the examiner's hands free to separate the lids, make the necessary examination, and apply the proper remedies. C. A. Wood and T. A. Woodruff (Med. Standard, Oct., 1901).

ENTERIC FEVER, WHEY IN.

Milk should not be given as a diet in enteric-fever patients, first, because milk in many cases forms hard, cheesy curds in the stomach. These curds pass along the intestine, giving pain and scraping the raw surfaces of the ulcers and causing in many cases hæmorrhage, perforation, and death. The effect of these cheese-like masses of casein is worse for the patient than feeding on well-masticated solids. Moreover, the perpetual distension of the bowel from the large amount of gases evolved by the digestion or decomposition of the milk keeps the ulcers stretched and thus thins their floors. Secondly, because the bacillus typhosus breeds rapidly in milk.

Whey has been personally given in the place of milk. The result has been to reduce the death-rate of the cases which had been 15.5 per cent. for the previous seven years to 2.7 per cent. for 73 cases.

In the preparation of the whey, to each quart of new milk 2 teaspoonfuls of rennet are stirred. This is put into a pan and warmed slowly till it curdles, which takes about twenty minutes. The curd is now taken up and the whole strained through fine muslin. A quart of milk yields about 6 ounces of curd. The whey can be sterilized in summer and made more palatable to some people by the addition of tea, coffee, or other

flavoring material. For children, if it be colored pink with a little cochineal, it makes them very happy. The quantity given varies from 1½ to 6 pints daily. If the whey be sterilized, some lemon-juice should be given occasionally to prevent scorbutic symptoms.

The amount of emaciation on this diet varies very much, but not more than it does on any of the usual diets for enteric fever.

The most marked beneficial effects of the whey diet are in the clean mouth and tongue. Even in the third week of the disease the tongue and mouth scarcely vary from the normal healthy condition.

The result of whey diet on the heart is good, as can be seen by the gradual diminution of the pulse-rate. Prideaux Selby (Lancet, Nov. 2, 1901).

EPILEPSY, THE USE OF CHLORETONE IN.

Chloretone is a drug which, in selected cases, is an excellent substitute for the bromides. It is a drug which gives good results with decreasing dosage after the primary effect is obtained. In administering the drug, it is usually put up in capsules, and sufficient is given in the beginning to produce a hypnotic effect. In a large class of epileptic cases the fits occur most frequently at night, and one dose of 15 or 20 grains is given at night until a drowsy effect on the following day is produced; if the desired results in reducing the number of fits is obtained, the dose is reduced one-half and the patient kept on this indefinitely. The dietetic, hygienic, and constitutional treatment is rigidly enforced in conjunction with the administration of the chloretone. D. J. McCarthy (Inter. Med. Mag., Aug., 1901).

ERYSIPELAS.

Etiology.—From cases in which an erysipelatous inflammation was produced by the staphylococcus and experimental facts, the following conclusions are based: (1) that etiologically erysipelas is not a specific disease; (2) that in the rabbit's ear typical erysipelas may be produced not only by the streptococcus, but also by the staphylococcus, pneumococcus, and bacillus coli; (3) that human erysipelas is, as a rule, produced by streptococcus pyogenes, but that it may be excited by staphylococcus aureus; (4) that the question whether the facultative pus-producers, such as the pneumococcus, bacillus coli, and typhoid bacillus are capable of producing erysipelas in man is still an open one. Jordan (*Münch. med. Wochen.*, Aug. 27, 1901).

FIBROIDS AND PREGNANCY.

If the cervix is free from any fibroid change, supravaginal amputation should be performed, but where this portion of the uterus is involved in the pathological process, total hysterectomy is indicated.

Direct operative treatment during pregnancy for the removal of fibroids is rarely indicated, and in most cases it appears more advisable to wait until labor before operating, and in some few cases it is probably better to interfere during the puerperium when the child has been expelled without operative interference. Premature labor artificially produced should be rejected. According to the time of pregnancy as well as to the physical qualities of the neoplasm, the surgeon will choose between conservative myomectomy and radical operation. The removal of pedunculated fibroids or those which are easily enucleated on account of their accessi-

bility is at all times admissible and to be advised. Since enucleation easily determines a miscarriage, it should be delayed as long as possible. Immediately before or during confinement, this operation is decidedly indicated when the patient is a young woman with a uterus capable of other pregnancies if the organ can be saved. C. G. Cumston (*Amer. Gynec. and Obstet. Jour.*, Oct., 1901).

HÆMORRHOIDS.

Treatment.—Usually the external venous hæmorrhoid requires no more treatment than a proper regulation of the bowels and local cleansing baths. If a hæmorrhoid of this variety causes pain, it is due to an accompanying fissure or raw surface. The best treatment is to thoroughly stretch the sphincter ani under an anæsthetic.

For the thrombotic hæmorrhoid one should use radial incision, turn out the entire clot, and allow the sac to collapse. Occasionally it may be necessary to pack the cavity lightly to prevent refilling. If patients refuse this procedure, much comfort may often be given by an ice-bag, locally. Applications of the ointments of opium and belladonna, equal parts, may be of some assistance. Sometimes hot applications give relief.

External fleshy hæmorrhoids need no interference unless they become inflamed or cause annoyance. Excision with wedge-shaped incision, and suture of the wound for healing by first intention, is the best procedure when interference is desirable. In cases with inflammation the ice-bag or hot applications and the ointment just mentioned will be found of service. When desired, an astringent, like tannic acid, may be added to the ointment. A. T. Mann (*Northwestern Lancet*, Nov. 1, 1901).

INTESTINES, MUCOUS DISEASE OF THE.

Treatment.—It is important to attend to the diet and general hygiene. The food must be easily digestible, nutritious, more solid than liquid, and should be taken in small quantities, with three, if not four, hours between each meal. Sir Andrew Clark recommended cold baths in this disease. Their use must, however, be limited to the cylindrical and tubular types. In these, exercise also is sometimes beneficial. The bowels must be kept regular in all types or stages. In some cases during the passage of the tubes rhubarb and soda may be given with much benefit.

Glycerin suppositories are also useful. Enemata may be necessary. Calomel in small doses appears to render the *fæces* less offensive. The abdominal pain is sometimes difficult to alleviate. Warm fomentations are useful with opium or *cannabis Indica*, with *belladonna* internally. This may produce constipation, and thus such remedies must be used with great care.

Later in the disease bromide of potassium combined with iron seems in some cases to be of use; and in others quinine, arsenic, and strychnine are most beneficial. In the hæmorrhagic type *pilula plumbi cum opio* has been useful. Francis Hawkins (*Edinburgh Med. Jour.*, Nov., 1901).

MOUTH IN INFANCY, EXAMINATION OF THE.

The ideal position in examination of the mouth in infancy is to have the back of the child rest against the mother's right breast, its head against her shoulder, her left hand holding the child's knees, her right its hands. The left index finger and thumb of the physician are placed on the infant's tem-

poral region and with the palm the head is held firmly against the mother's shoulder.

Position, light, and depressor being ready, examination is begun. If the child cries and opens its mouth, so much the better, for the instrument is inserted at once and the cavity inspected. If difficulty is encountered in opening the mouth, the spatula is passed at the side along the lower alveolar border to the pharynx; once this is irritated the mouth will open.

A systematic examination of the mouth must be conducted as follows: The depressor is inserted at the left angle of the mouth, the cheek and lips everted, then at the right angle, and the cheek and lips everted. The spatula then catches the frenum and the under surface of the tongue, and the frenum and the floor of the mouth are observed; the spatula being removed, the upper surface of the tongue is viewed; the latter is then firmly depressed and the hard and soft palates, fauces, tonsils, pharynx, and in the vast majority of cases the epiglottis are observed.

The very first step may give information as to the presence of catarrhal, aphthous, parasitic, ulcerative, or gangrenous stomatitis; epithelial pearls, Koplik's spots, dental ulcers, progress of dentition, character of the teeth and gums (spongy or hæmorrhagic), purpuric spots, *molluscum epitheliale*, *verruca*, *anæmia*, *cyanoësis*, swelling of the outlet of Steno's duct, etc.; the second step tells of the condition of the frenum (long, short, thick, adherent, or vascular), the presence of sublingual ulcers (*pertussis*), the condition of the sublingual veins (dilated in sporadic cretinism), patches of stomatitis, and the general appearance of the floor of the

mouth. The third step will give information as to the color, size, and general appearance of the tongue, whether coated, clear, anæmic, congested, hypertrophied, strawberry, fissured, or presenting irregular exfoliated areas (so-called ringworm of the tongue); and the final step may show perforation, deformities, or congenital defects of the hard palate, stomatitis, purpuric spots, lesions of varicella and variola, papular eruption of measles, Epstein's pearls, Bednar's aphthæ; an elongated, short, bifid, or œdematous uvula; jaundice, faucitis, hypertrophied tonsils; pharyngeal inflammation, exudate, or growths; retropharyngeal œdema, adenitis or abscess, pharyngeal granulations (important in the diagnosis of adenoid vegetations), tonsillar abscess or œdema, etc. Jacob Sobel (*Med. News*, Nov. 2, 1901).

NEURASTHENIA, HYDROTHERAPY IN.

Neurasthenia offers a fruitful field for hydrotherapy. From actual observation it has been found that, in a large proportion of neurasthenics, if there be no organic basis nor positive hereditary predisposition to insanity, the result of a methodical course of hydrotherapy in connection with properly adjusted diet and environment will prove a revelation. The most useful procedures are the dry pack, which consists of a snug wrapping of the patient in heavy woolen blankets for about an hour, so as to accumulate heat. Successive parts of the trunk are then uncovered and treated to a rapid and brisk rubbing with a bath-glove or wash-rag saturated in and squeezed out of water at 85 degrees. After drying and good friction the patient is sent into the air for gentle exercise. Every day the packs and wet rubbing are repeated, the water tem-

OLIVE-OIL, TEST FOR.

perature being reduced two or more degrees daily until 60 degrees are reached. The patient's reactive capacity having been trained by these daily neuro-vascular gymnastics, he is subjected to more decided hydropathic procedures. Standing in water at 100 degrees in a warm bath-room, the patient may be subjected to affusions. From a foot-tub containing water at 80 degrees, which may be daily reduced two or more degrees until 60 degrees are reached, water is dipped with a long-handled basin or large tin dipper and thrown with force upon the upper back and successively over each shoulder and anterior part of the body. If this be done rapidly, followed by rapid drying, dressing, and exercise, the patient will not become chilly. Every day larger quantities of water may be used, always avoiding chattering of teeth and cyanosis, but not desisting because the patient complains of feeling cold or chilly. These and other home procedures, applied with due regard to the patient's reactive capacity and as carefully supervised by the physician as he would supervise the administration of any powerful medicinal agent, will bring relief and perhaps entire recovery to a large proportion of cases. If, however, skilled nurses cannot be obtained or home treatment is otherwise inconvenient or difficult, or if the domestic treatment has not been successful, a systematic course of douches, which may be obtained without making the patient an inmate of a sanatorium, will prove satisfactory in many apparently hopeless cases. Simon Baruch (*St. Louis Med. and Surg. Jour.*, Nov., 1901).

OLIVE-OIL, TEST FOR.

One of the principal adulterants of olive-oil is cotton-seed oil, but rape-oil is also used to a very large extent.

Olive-oil is slightly soluble in alcohol and dissolves very readily in ether, chloroform, or carbon disulphide.

One of the best tests for olive-oil is Bechi's test. If 5 cubic centimeters of the oil be thoroughly shaken in a test-tube with 5 cubic centimeters of an alcoholic solution of silver nitrate (prepared by dissolving $\frac{1}{10}$ gramme of silver nitrate in 10 cubic centimeters of deodorized alcohol and adding 2 drops of nitric acid to the mixture) and heated for about five minutes in a water-bath, the oil should retain its original color, not becoming reddish or brown, nor should any dark color be produced at the line of contact of the two liquids (absence of more than 5 per cent. of cotton-seed oil or any other foreign oils). C. F. H. Meyer, Jr. (*Amer. Jour. of Pharm.*, Nov., 1901).

OXALURIA.

The significance of oxaluria depends upon whether it appears in concentrated urine or in urine of low specific gravity. In the former instance its presence is probably due to decomposition of the urates, and, consequently, is of little significance, whereas in the latter, especially if the deposit is constantly present, it indicates a morbid defect.

The causes of oxaluria are not thoroughly understood. It may be readily induced by partaking of certain articles of food, such as gooseberries, tomatoes, or rhubarb, and some authorities even hold that oxaluria depends always upon the existence of oxalates in the diet. According to Bence-Jones, oxaluria is due to incomplete oxidation of the carbohydrate proximate principles of food. Hence the increased excretion of oxalate of lime in dyspeptic and nervous troubles, and in cases of glycosuria. The circumstance is recognized that

oxaluria may persist in certain individuals, even when all articles of diet known to contain oxalic acid or its compounds in any form are avoided, whereas in other persons, even although they partake freely of diet known to be rich in oxalic acid, we fail to find any evidence of oxaluria. David Newman (*Glasgow Med. Jour.*, Oct., 1901).

PLACENTA PRÆVIA, CÆSAREAN SECTION IN.

It is firmly believed that the Cæsarean and the Porro operations are perfectly legitimate and elective procedures in all cases of placenta prævia, central and complete, and especially so when the patient is a primipara, when the os is closed, and the cervix unabridged; when hæmorrhage is profuse and cannot be controlled by tampons, and separation of the placenta around the internal os is difficult or impossible.

When confronted with a case of central or complete placenta prævia or any other variety where dilatation of the cervix is impossible or difficult, the patient and her immediate friends should be made acquainted with all the facts concerning both methods of treatment. If properly presented, it is doubtful whether the majority of women would select forcible dilatation, version, extraction, etc. E. Gustav Zinke (*Amer. Gynec. and Obstet. Jour.*, Oct., 1901).

PSORIASIS.

Treatment. — Psoriasis is not very amenable to treatment. Arsenic is, on the whole, the most efficacious drug, but it has to be given in large doses and with great perseverance. When it cures the disease, it often leaves pigmentations of the skin, sometimes thickening of the epidermis of the palms and soles, and in very rare cases, according to

Hutchinson, corn-like growths which may become malignant. In acute forms antimony is most useful, and nerve-sedatives should be administered if there is any clear indication for their employment. Thyroid feeding has been found quite useless. For local application, parasiticide substances—such as mercurial preparations, resorcin, etc.—are useful, but the most efficient of all is chrysarobin. A visit to a sulphur spring will in many cases complete the cure. Whatever plan of treatment is employed, it must be followed out perseveringly. Malcolm Morris (N. Y. Med. Jour., Nov. 16, 1901).

RIBS, CERVICAL.

A great many points of interest have been raised in reference to the symptoms caused by cervical ribs. The same are always due to pressure upon the brachial plexus and the subclavian artery. Symptoms of pressure on the plexus have been identical in almost all the cases reported; formications and numbness in the hands and fingers, neuralgic pains shooting through the entire extremity and occasionally radiating to the shoulder and the anterior wall of the thorax (posterior thoracic nerve). While no degeneration reactions have been observed, there is always a loss of muscular power in the entire extremity. An unusual symptom, occasionally observed, is the inability of the patient to fully extend the arm in the elbow-joint. Hoarseness has been ascribed by Planet to pressure upon the recurrent nerve.

Pressure upon the subclavian artery occasionally leads to the formation of aneurisms in that portion lying between the rib and clavicle in the supraclavicular space and to thrombosis.

Much speculation has been indulged

in as to the nature of the compression exerted by the supernumerary rib. If the latter is fully developed and reaches the sternum, it seems probable that the subclavian vessels and the plexus will adapt themselves, during further development, to these conditions, and will pass over the additional rib as easily as they do normally over the first dorsal rib. But why, on the other hand, should symptoms develop more or less suddenly in persons who have carried their cervical ribs for twenty to fifty years without molestation? In some cases a trauma has been accused of causing a development of symptoms, such as the violent extraction of a cork from a bottle, the wearing of a knapsack with shoulder-straps, or a fall upon the shoulder; one must confess not a very convincing array of facts to establish this etiology.

Many of the cases recorded have been improved, apparently even cured, by suspension, massage, electricity, poultices, and the like. In a few the subjective symptoms, after persisting some time, have disappeared without treatment, to reappear again after a greater or lesser interval. When the symptoms caused by the cervical rib are simply those of moderate pressure upon the plexus, non-operative treatment is indicated. When this is ineffectual or the symptoms recur, removal of the rib should be considered. When signs of compression of the subclavian artery are present, operation is always indicated, provided an aneurism has not developed. Frederick Kammerer (Annals of Surg., Nov., 1901).

RINGWORM OF THE SCALP.

Treatment.—In ringworm of the scalp, cleanliness and frictions with carbolized oil are personally almost ex-

clusively relied on. The strength of the application used is 1 part of carbolic acid to 16 parts of linseed- or olive- oil. This should be applied in the following manner: After washing the scalp with warm water and soap, and drying, a little of the oil is poured on a piece of flannel, and rubbed into the diseased patch with smart friction. The friction drags out of their follicles the loosened hairs, and has an additional advantage in opening the mouths of the hair-follicles and allowing the remedy to penetrate deeper, and come in closer contact with the parasite. When the diseased patch has thus been well saturated with the carbolized oil, the remainder of the scalp should also be rubbed with it, to prevent extension of the infection.

Sulphurous acid has also been used with great satisfaction in the treatment of ringworm of the scalp. It is used either in full strength, or diluted with a half or an equal part of water.

No other measures have been found necessary in the treatment of simple ringworm of the scalp. H. A. Johns (*Mass. Med. Jour.*, Nov., 1901).

SADDLENOSE, AN OPERATION FOR.

The operation for saddlenose may be described as follows:—

A longitudinal incision is started in the middle line at or near the root of the nose, depending on the amount and situation of the deformity; it is carried downward toward the tip of the nose. At a variable point, depending on conditions to be mentioned hereafter, the line of incision divides, the two lines separating more or less and coming together again below the tip, forming an ellipse. This incision is carried through the skin, and the skin included in the

ellipse is removed. The skin is then dissected loose for a sufficient distance on either side, especially in the region of the deformity.

The next step is to dissect up a flap composed of the subcutaneous tissue and perhaps cartilage, starting at or below the tip and raising the flap as far as the lower end of the depression, leaving it attached by a broad base at its upper part. The flap is turned upward and laid with its outer surface upon the exposed cellular tissue at the upper part of the incision, corresponding to the depression.

The flap is made thicker in the middle than at the sides or ends, the thickest part, when it is placed in position, corresponding to the most depressed part.

It is best not to carry the upper end of the incision too high, but, having loosened the skin at that point, to tuck the free end of the flap under it. After raising this flap a portion of the cartilages lying on each side of the median line of the tip is removed, the amount depending on the spread of the nostrils.

The suturing should be done with a fine, small needle, preferably with horse-hair. The approximation should be very accurate and not too tight. The stitches should be removed as soon as possible.

The quantity of skin removed in the ellipse depends on the amount of broadening of the tip and alæ. A narrow piece should be first removed, and subsequently more, if necessary.

The skin is then approximated by very fine sutures throughout the length of the incision, a figure-of-eight suture being used at the tip to approximate the deeper parts, and the wound is covered by a light dressing of collodion, iodoform, and gauze. Fred. W. Gwyer (*Annals of Surg.*, Aug., 1901).

SCARLATINA, THE NASO-PHARYNX IN.

To clean and to disinfect the infiltrated mucosa in scarlatinous nasopharyngitis, irrigations with 1- to 5-per-cent. warm solutions of ichthyol, repeated every six hours, have been successfully used. A half-pint is allowed to flow through the nares and the nasopharynx from a fountain-syringe suspended about three feet above the patient. When the infiltration of the nasopharynx has so far advanced as to obstruct the passage-way between nose and throat, irrigations will be found insufficient, for the fluid then returns through the other nostril without coming in contact with the surface of this cavity.

During the last year six cases of scarlatinous nasopharyngitis in which irrigations were insufficient have been treated in a manner which readily overcame the obstruction. This consists in local applications with a 50-per-cent. resorcin solution in alcohol. These resorcin-alcohol applications have proved themselves to be perfectly harmless, and are indicated in scarlatina as soon as the nasopharynx becomes involved. A. Seibert (*Archives of Pediatrics*, Aug., 1901).

SCOLIOSIS.

Treatment.—In cases of scoliosis with fixed bony curves the same theory of corrective treatment cannot be applied as in cases with flexible curves. The fact that there is a fixed portion of the spine situated between two movable parts makes it easier to twist or displace the thorax as a whole than to make any change in the curved portion itself. As a result of this, forcible attempts to correct bony rotation in fixed curves will

increase the lateral curve, unless the thorax is kept from rotating, and forcible attempts to correct the lateral curve are likely to increase the rotation.

To judge from the observations on the cadaver, suspension as a corrective agent has but little corrective effect in rigid cases.

For the application of forcible jackets, the prone position, with the legs hanging perpendicularly, seems the most effective.

With regard to forcible correction, one of two things may be done: (1) force, correctly antagonized, may be applied to the curve itself, with a view to improving the curved position of the spine; (2) the curved region may be twisted as a whole, or displaced sideways as a whole in its relation to the rest of the spine, as occurs when unopposed force is applied to the curve. The former is the more desirable when it is possible, but the latter may be of much use in improving the general outline of the body.

Forcible correction seems to have its place only as preliminary to gymnastic treatment, and the use of corrective plaster jackets is not advocated, except as a temporary means to secure a better foundation for better gymnastic or, if necessary, mechanical treatment. R. W. Lovett (*Boston Med. and Surg. Jour.*, Oct. 31, 1901).

STOMACH, CARCINOMA OF THE.

Treatment.—The surgical treatment of carcinoma of the stomach is indicated not only when stenosis is present, but also as a radical cure of the cancer itself. If under the actual conditions, which are bad, resection has only radically cured a few patients, it has at

least given, in more than 33 per cent. of the patients operated upon, a new lease of life, without suffering, of from one to eight years. Under the same conditions the operative mortality has been reduced to 20, 15, and even 10 per cent.

In every case where carcinoma of the stomach is suspected, an immediate exploratory laparotomy should be advised, and every neoplasm that can be removed from the stomach should be excised, no matter what its nature may be.

In order to successfully perform resection of the stomach, and in order that its results shall attain the maximum of efficaciousness, the surgeon should not wait for a clinically confirmed diagnosis of cancer of the stomach, because an exploratory laparotomy is justified in every case where the patient is afflicted with gastric troubles, when (1) analysis of the gastric juice shows an absence of pepsin and the presence of lactic acid, and (2) when medical treatment carefully conducted is incapable of increasing the body-weight and retaining it there.

The contra-indications of resection of the growth are to be drawn from the general condition of the patient, as well as by the presence of visceral metastases demonstrated by palpation or by exploratory incision, as well as from the immobility and adhesions of the tumor and the propagation of the neoplasm beyond the movable portions of the duodenum or the œsophagus. The age of the patient, the presence of some enlarged glands, the size, the anatomical position, and the extent of the neoplasm in the walls of the stomach in no way contra-indicate resection. C. G. Cumston (Boston Med. and Surg. Jour., Sept. 5, 1901).

SUPERHEATED DRY AIR, METHOD OF GIVING TREATMENT WITH.

The remedy should be applied at least one hour after a meal and with as little previous excitement and exertion as possible. The patient is clothed in a long, flannel robe; lies on the roller bed; and has a blanket wrapped around him from the shoulders down. This causes a certain amount of absorption of the moisture as it exudes from the skin, and also helps to promote sweating.

The pulse and temperature are taken and the urine is examined before the patient enters the cylinder.

The position of the patient while taking treatment is important. The roller bed, with the patient in position, is run into the treatment-chamber, where the heat, as shown by the thermometer, varies from 100° F. to 200° F. according to the circumstances of the case. It is in every case preferable to begin with the temperature of the cylinder about 100° F. and let it gradually rise. It only takes twenty minutes from the time the gas is first turned on to acquire a heat in the treatment-chamber of 300° F.

During the treatment the trap-door of the apparatus is frequently opened. This acts as a ventilator, changing the air; it also allows the air that is charged with the evaporated moisture exuded from the skin to escape, thereby completely drying the air in the cylinder. This is really the secret of the treatment, for, if the air is allowed to remain moist in the cylinder, the patient will probably scald long before the required temperature is reached.

The pulse and temperature are taken during treatment.

The average duration of the treatment is forty-five minutes, but varies

somewhat with character of disease and temperature of patient.

Superheated dry air is a most valuable addition to the ordinary treatment of all rheumatic affections, gout, and interstitial neuritis. The treatment almost instantly relieves pain, causes rapid absorption and repair of tissues, aids elimination, and has a marked sedative action on the nervous system. To obtain the most benefit, it is necessary to subject a considerable portion of the patient's body to a temperature of from 280° F. to 320° F. Less relief has been found from local treatment alone. The treatments must follow one another at short intervals at first, as patients relapse if any length of time supervenes. The results are often not apparent for some time after treatment. W. H. Pepper (*Canada Lancet*, Oct., 1901).

SYPHILIS, TREATMENT OF, WITH MERCUROL.

There is no hope of eradicating syphilis unless the full dose of mercury is given constantly for something like three years. The treatment should begin just as soon as the diagnosis can be made. Experiments with mercuriol were conducted at Bellevue Hospital, for eight and a half months, with 180 cases; the histories of 95 of these are recorded. The remainder could not be kept under observation. The dosage of the mercuriol, regulated either by reaching the point of tolerance or control of the disease, varied from $\frac{1}{2}$ to 6 grains. In 64 of the 95 cases the disease was controlled as follows: in two weeks, 8; three weeks, 12; four weeks, 14; five weeks, 6; six weeks, 5; seven weeks, 2; two months, 8; ten weeks, 2; three months, 5; and four months, 1. The remainder are marked thus: decidedly improved, 17; improved, 8; no improvement in

two weeks, 3; no improvement in four weeks, 1; and no improvement in three months, 2. The latter were all dispensary patients, and it is uncertain whether they took their medicine regularly.

The plan was to increase the dose steadily from 1 grain until the symptoms were controlled, or until there was a slight tendency on the part of the teeth and gums to become tender. If the symptoms were not controlled before the physiological effect of the mercuriol made itself felt, small doses of potassium iodide were added, and in every case where the mercuriol was taken according to directions, with the exceptions noted above, the symptoms were controlled.

In 67 out of the 95 cases tabulated, no other medicine than mercuriol was given. In 15 out of the remaining 28 the addition of iodide of potassium was found to be sufficient to control the disease, while in 6 others the addition of an iron tonic sufficed for this purpose.

Mercuriol is used in personal practice to the exclusion of all other drugs. No form of mercury can be given with such good results as that of mercuriol. Winfield Ayres (*Lancet*, Oct. 19, 1901).

TUBERCULOSIS, GENITAL.

In genital tuberculosis, epididymectomy, with high resection of the vas deferens, is the operation of choice.

Castration should be confined to cases where the testicle proper is involved or the scrotal disease is extensive.

Double castration should be avoided if possible, a portion, at least, of one testicle being left, even with the risk of local recurrence of the disease.

Operations upon the seminal vesicles and prostate should only be done after removal of the testicular foci has failed

to arrest the progress of the disease in these organs, and it has spread to the bladder.

Serious involvement of distant parts—pulmonary, urinary, osseous, etc.—does not contra-indicate operation, especially since the more exact methods of using cocaine have made general anæsthesia unnecessary.

That remarkable disappearance of extensive tuberculosis of the prostate, seminal vesicles, bladder, kidneys, lungs, etc., may follow the simple removal of the testicular foci seems abundantly proved. H. H. Young (*Annals of Surg.*, Nov., 1901).

ULCERATION OF THE ŒSOPHAGUS AND STOMACH DUE TO SWALLOWING STRONG HYDROCHLORIC ACID.

The following rules are indicated in these cases:—

1. The patient should receive no food (either liquid or solid) by the mouth for several weeks: *i.e.*, he should not be fed by the mouth as soon as he can swallow with little or no pain, but oral feeding should be postponed until there is good reason to believe that the injuries have completely healed.

2. When the injuries are serious (and they generally are so), an operation should be performed within a few days of the date of the poisoning: the sooner, the better.

The region most seriously injured is usually the pyloric part of the stomach. The choice of operations apparently lies between gastrostomy, duodenostomy, jejunostomy, gastro-enterostomy, and a combination of gastrostomy with gastro-enterostomy. The indications would most likely be best met by combining a gastrostomy with a gastro-enterostomy, and carrying the gastrostomy-tube

through the gastro-enterostomy wound for some distance down the efferent loop of the jejunum.

Feeding by the gastro-jejunal tube would be commenced at once, in spite even of moderate ether or chloroform vomiting, should these anæsthetics be used, but gas alone, or with oxygen, would suffice for the operation described, or even local anæsthesia. Local treatment should be given to (1) the mouth and nose, (2) the pharynx and the Œsophagus, and (3) the stomach.

The mouth should be freely washed out with warm solution of chlorate of potash or warm boric lotion, or with both. Dirty teeth should be cleaned, diseased teeth should be treated with pure carbolic acid or by extraction, and suppurating alveoli should be attended to. If the process is very painful, owing to the burning, gas, cocaine, or eucaine should be used. The nasal passages should be attended to if unhealthy.

The pharynx should be sprayed frequently with hot boric lotion, and twice a day it should be dusted with a little—not much—iodoform powder through a puff. As soon as the patient can swallow without pain he should be allowed hot water or hot neutral saline *ad libitum*, and be encouraged to take it.

The hot water swallowed should be allowed to escape by the short gastrostomy-tube, so that it would tend to wash out the stomach also. In addition, after each meal given by the gastro-jejunal tube the stomach should be washed out with hot water by the gastric tube. C. B. Keetley (*Lancet*, Nov. 16, 1901).

UREA, EXCRETION OF.

The normal excretion of urea is about 2 per cent. The amount of urea is increased after administration of sul-

phuric acid, chlorate of potash, ammonium salts; small doses of phosphorus, arsenic, antimony, morphine, codeine; or large doses of quinine; after poisoning by phosphorus or arsenic; after cold or hot baths or excessive muscular work; during the commencement of acute febrile diseases; during the paroxysms of intermittent fever; in diabetes, and in pernicious anæmia. It is decreased after administration of small doses of quinine; during defervescence in febrile diseases; in most of the chronic or debilitating diseases (anæmia, syphilis, phthisis, etc.); toward fatal termination of most diseases; in uræmia and diabetic coma, and in all degenerative processes of the kidneys or liver, especially in acute yellow atrophy. A. Robin (Inter. Med. Mag., Aug., 1901).

URINE, EFFECT OF SANDAL-OIL AND COPAIBA UPON.

The characteristics of the urine after using sandal-oil, which distinguish it from urine after using balsam of copaiba, are as follows: Copaiba urine gives color-reaction after adding mineral acids and rotates the plane of polarized light. Sandal-oil urine gives neither of these reactions. Gummy acids are contained in sandal-oil in large amounts, and they are precipitated by concentrated HCl. The same reaction occurs after using copaiba, but is much less intense. Sandal-oil in the urine has a marked reducing action. Copaiba urine has no reducing power, and is said to exhibit the reactions peculiar to it for several days after taking copaiba, while sandal-oil urine shows its peculiar reactions from only twelve to fifteen hours after taking sandal-oil. Karo (Archiv f. Exper. Path. u. Pharm., B. 46. II. 3 u 4, 1901).

VACCINATION-RASHES.

VACCINATION-RASHES.

Vaccination-eruptions may be divided into two principal groups: 1. Eruptions due to pure vaccine inoculation. 2. Eruptions due to mixed inoculation: that is to say, to vaccine plus another virus. Some years ago eruptions due to vaccination were personally classified as follows:—

Group I.—Eruptions due to pure vaccine inoculation:—

DIVISION A.—Secondary local inoculation of vaccine.

DIVISION B.—Eruptions following within the first three days before the development of vesicles:—

Urticaria.

Erythema multiforme.

Vesicular and bullous eruptions.

DIVISION C.—Eruptions following after development of vesicles, due to absorption of virus:—

1. Roseola—like measles.
Erythema—like scarlet fever.
Purpura.
2. Generalized vaccinia.

DIVISION D.—Eruptions appearing as sequels of vaccination:—

Eczema, psoriasis, urticaria, etc.

Group II.—Eruptions due to mixed inoculation:—

DIVISION A.—Introduced at time of vaccination:—

Subdivision a.—Producing local skin disease:—

Contagious impetigo.

Erythema.

Subdivision b.—Producing constitutional disease:—

Syphilis.

Leprosy (?).

Tuberculosis (?).

DIVISION B.—Introduced not at time of vaccination, but subsequently, through the wound:—

1. Erysipelas.
2. Cellulitis
3. Furunculosis.
4. Gangrene.
5. Pyæmia.

The eruptions belonging to Group I must be reckoned as practically unavoidable, as for the most part they are due to idiosyncrasy. The eruptions included in Group II, on the other hand, are preventable by using pure lymph with the strictest antiseptic precautions. Malcolm Morris (*Amer. Med.*, Oct. 5, 1901).

YELLOW FEVER, INOCULATION OF.

The intentional inoculation of yellow

fever gives the patient the better chance of recovery, and, as stated by Dr. Gorgas, in his Report of Vital Statistics for August, 1901, "when a non-immune is going to be exposed to yellow fever, it is better to be inoculated, and have the disease under circumstances where he can be put to bed early and be treated from the beginning, than to take it accidentally."

In making these inoculations for purposes of immunization, not more than 1 mosquito should be employed for each inoculation, and, of course, whenever a group of mosquitoes infected from one case should show a very decided virulence, their use should be abandoned. John Guit  ras (*Amer. Med.*, Nov. 23, 1901).

Books and Monographs Received.

The editor begs to acknowledge, with thanks, the receipt of the following books and monographs:—

Transactions of the Clinical Society of London, Volume Thirty-four. London: Longmans, Green & Co., 1901.—A Brief Report of a Series of Interesting Cases Recently Seen. By Alexander Marey, Jr., Riverton, N. J., 1900.—Cyclic Vomiting. By Alexander Marey, Jr., Riverton, N. J., '99.—Movable Kidney from the Stand-point of the General Practitioner. By Alexander Marey, Jr., Riverton, N. J., 1900.—The Use of Sulphide of Calcium as a Remedy. By Samuel E. Earp, Indianapolis, Ind., 1901.—Early Prophylaxis in Obstetrics. By W. A. Howe, Phelps, N. Y., 1901.—The Value of the Tuberculin Test in the Recognition of Latency or Quiescence in Tuberculosis of the Bones and Joints. A Preliminary Report. By C. H. Frazier and M. H. Biggs, Philadelphia, 1901.—The Case Method of Teaching. By C. H. Frazier, Philadelphia, 1901.—The Operative Treatment of Cirrhosis of the Liver. By C. H. Frazier, Philadelphia, 1901.—A Clinical Classification of Insanity. By F. X. Dereum, Philadelphia, 1901.—A Study of the Temperature, Pulse, and Respiration in the Diagnosis and Prognosis of Certain Diseases of the Brain. By J. T. Eskridge, Denver, Col., 1901.—The Cataphoric Treatment of Cancer. By G. Betton Massey, Philadelphia, 1900.—Medullary Narcosis. By W. L. Rodman, Philadelphia, 1901.—The Best Incision in Operations for Mammary Carcinoma. By W. L. Rodman, Philadelphia, 1901.—Gastric Ulcer: Non-perforating Hæmorrhage. By W. L. Rodman, Philadelphia, 1900.—La M  thode Antiseptique dans le Pass  , le Pr  sent, et l'Avenir. Par le Dr. Lucas-Championni  re, Paris, France, 1901.—Disinfection Against Mosquitoes with Formaldehyde and Sulphur Dioxide. By M. J. Rosenau, U. S. Marine-Hospital Service, Washington, D. C., 1901.—Studies on Bread and Bread-making at the University of Minnesota in 1899 and 1900. By Harry Snyder. U. S. Department of Agriculture, Washington, D. C., 1901.—Report of the Secretary of Agriculture, 1901. U. S. Department of Agriculture, Washington, D. C., 1901.

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